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USSR Report

CONSTRUCTION AND EQUIPMENT

No. 61

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CONTENTS

CONSTRUCTION

Capital Construction Improvements Demanded by 11th Five-Year Plan
(Editorial; EKONOMIKA STROITEL'STVA, Feb 82) 1

Western Siberia: Construction Reported
(Various sources, various dates) 7

Oilfield Road Construction, by N. V. Tabakov, et al.
Surgut: Development, by Stanislav Mal'tsev
Construction in Yamalo-Nenetskiy Okrug, by V. Badov
Construction Base of Western Siberia, by G. Ovcharenko
Housing Construction in Western Siberia,

Monetary Controls Should Restrict Dissipation of Funds for Construction
(M. S. Zotov; EKONOMIKA STROITEL'STVA, Nov 81) 22

Building-Program Cutbacks, Methods for Improving Construction Described
(Editorial; EKONOMIKA STROITEL'STVA, Dec 81) 30

General Methods for Improving Capital Construction Pointed Out
(Editorial; MEKHANIZATSIYA STROITEL'STVA, Jan 82) 35

Installers Must Concentrate on Facilities Due for Early Startup
(B. V. Bakin; MONTAZHNYYE I SPETSIYAL'NYY RABOTY V STROITEL'STVE, Jan 82) 39

Systems for Using Monolithic Construction of Housing Outlined
(Ya. Tsirik, B. Brandenburg; STROITEL'STOV I ARKHITEKTURA MOSKVY, Sep 81).. 48

Hasty Decision Stalled Debut of Cementmaking by Dry Method
(D. Katanov; TRUD, 17 Feb 82)................................ 53

Survey Pinpoints Quality Monitoring Shortcomings
(I. A. Akimova; EKONOMIKA STROITEL'STVA, Feb 82)............ 56

METALWORKING EQUIPMENT

Universal-5 Industrial Robot Described
(TEHNIKA JA TOOTMINE, Feb 82)................................ 60

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CAPITAL CONSTRUCTION IMPROVEMENTS DEMANDED BY 11TH FIVE-YEAR PLAN

Moscow EKONOMIKA STROITEL'STVA in Russian No 2, Feb 82 (signed to press 18 Jan 82) pp 3-8

[Editorial: "All Forces Towards Fulfilling the Five-Year Plan"]

[Text] The Soviet nation has begun the second year of the 11th Five-Year Plan. We have begun actualizing the assignments of the five-year plan approved by the November (1981) CPSU Central Committee Plenum and adopted by the sixth session of the 10th Convocation of the USSR Supreme Soviet.

In accordance with the resolutions of the 26th CPSU Congress, the USSR State Economic and Social Development Plan for 1981-1985 has placed important significance on further developing branches of the national economy, on a purposeful capital investment policy and on improving capital construction.

Under present conditions, capital construction has a large role. Ensuring the planned high rates of growth in industrial output production and substantial advances in its structure, steady development of agriculture and the entire agroindustrial complex, further development and retooling of transport and the implementation of the major social measures outlined in the five-year plan will require unconditional fulfillment of the taut capital construction program anticipated in the 11th Five-Year Plan.

As is known, we plan to direct 700 billion rubles in capital investment from all sources of financing into developing the national economy in 1981-1985. And although the growth in these investments was relatively small in terms of actual fulfillment in the 10th Five-Year Plan, comprising 10.4 percent, the absolute amount of work volume planned is truly ambitious. In this regard, one distinguishing feature of the capital investment plan in the 11th Five-Year Plan is the fact that, given 11.2 percent growth in state capital investment, we are faced with increasing the start-up of fixed assets 21 percent and bringing the volume of unfinished construction down to the normative in the immediate future.

This places special demands both on the quality of the capital construction plan, which must fully reflect Comrade L. I. Brezhnev's instructions at the November (1981) CPSU Central Committee Plenum on the necessity of ensuring a maximum concentration of labor, material and financial resources on start-up construction projects and on the ministries, departments, associations, enterprises and organizations in terms of very strict observance of state and plan discipline when actualizing this plan.

A second and no less important feature of the capital construction plan in the 11th Five-Year Plan is the further increase in the scope of work on renovating and retooling existing enterprises.

The 26th CPSU Congress stressed the necessity of intensifying attention to renovating and retooling existing enterprises. Capital investments for these purposes are recompensed considerably faster than those on creating analogous production capacities through new construction and the demand for labor resources is reduced. Proceeding from this, capital investments on retooling and renovating existing enterprises are anticipated to grow 21.2 percent in the five-year plan, and their proportion of total capital investment in production construction will be 32.5 percent, as against 29.2 percent in the 10th Five-Year Plan.

We plan to ensure a significant increment in production capacities for initial oil refining, iron ore mining, the production of steel pipe, mineral fertilizers, synthetic resins and plastics, paper, furniture and other types of output through the retooling and renovation of existing enterprises.

The capital investment limits and assignments on increasing capacities at existing enterprises approved in the plan should be considered minimal. During the course of implementing the five-year plan, opportunities must be sought out for increasing this work within the overall capital investment limits set the ministries for the five-year plan. Steps must also be taken to strengthen construction organizations run by client ministries entrusted with retooling existing enterprises and, when technically and economically expedient, involve contractor construction and installation organizations more extensively in performing this work.

USSR ministries and departments are called upon to ensure the planned, comprehensive implementation of enterprise retooling measures on the basis of a previously worked out long-range plan and the high effectiveness of technical and organizational measures planned for increasing output volume and quality and raising the technical-economic indicators of enterprise operation.

The branch capital investment structure anticipated in the 11th Five-Year Plan proceeds foremost from the task of improving national economic proportions and eliminating as quickly as possible the difficulties which have evolved in providing the national economy with individual types of output and services. Relatively higher rates of growth in capital investment have been planned for the fuel and energy complex, machinebuilding, chemical industry, ferrous and nonferrous metallurgy, which are called upon to ensure a higher technical level of social production and continued effective development of the entire economy.

The amount of capital investment being directed into developing agriculture (in terms of the whole work complex, including production, housing, cultural and personal-services construction and equipment acquisition), transport and communications is growing.

Considerable capital investment is being directed into increasing the capacities of enterprises producing manufactured goods and food for the population. We are faced with a large amount of work on renovating and expanding existing and new enterprises in the light and food branches of industry, on creating additional capacities to produce consumer goods in a number of branches of heavy industry and machinebuilding.

Such a capital investment orientation, stemming from the necessity of resolving the primary task of the 11th Five-Year Plan and ensuring the accelerated development of the base branches of industry, faces construction ministries with the complex task of increasing the capacities of construction organizations and improving their mobility for performing the sharply increasing amounts of work at a number of large construction projects and in regions of concentrated construction.

"The new five-year plan will be a serious test for construction workers," Comrade L. I. Brezhnev noted in the CPSU Central Committee Accountability Report to the 26th Party Congress. "One characteristic feature of it is the maximum concentration of forces on the fastest possible completion and start-up of those enterprises capable of ensuring the greatest increment in output and of loosening bottlenecks."

The results of this past year bear out the fact that this test has not been entirely passed by construction workers, that many construction organizations have failed to ensure fulfillment of the 1981 plans for building and putting into operation a number of important production capacities and projects.

Client ministries and departments, construction ministries, ministries manufacturing technological equipment, components and parts, material-technical supply agencies and their enterprises and organizations, that is, all participants in the construction process, are called upon to take every step necessary to eliminate as quickly as possible the existing shortcomings in capital construction, to ensure fulfillment of the 1982 plan and to effect planned preparations for fulfillment of the construction program of subsequent years of the five-year plan. The more so, since favorable conditions have now evolved for successful fulfillment of the most important assignments established for 1981-1985.

As is known, in accordance with the CPSU Central Committee and USSR Council of Ministers decree on improving the economic mechanism, titles lists of construction projects begun prior to 1981 have now been approved in the five-year plan, with a breakdown of assignments by year of the five-year plan, as have titles lists and lists of newly begun construction projects with assignments by year for the entire construction period. Thus, both the clients and the construction organizations now have the entire "portfolio" of orders and are completely clear on the amounts of work ahead of them. This creates a firm foundation for prompt implementation of the necessary preparatory measures for carrying out the construction in a planned manner. It should be added that the approval of the 1982 contractor work plan and the five-year plan was proceded by a tremendous amount of complicated work to establish more realistic plans for regions of concentrated construction and regions now being utilized for the first time, where there is no adequately developed construction production base, and also work to balance plans with material, financial and labor resources.

The five-year plan fully reflects the provisions of the indicated CPSU Central Committee and USSR Council of Ministers decree on changing over to the new system of indicators aimed at attaining the end results of construction production -- prompt start-up of capacities and projects. Work is being done on introducing the indicator of normative nominal net output into construction, which will be of important significance to correctly calculating labor productivity and limiting the influence of gross volume on the economic results of construction organization activity.

At the same time, it should be noted that, in spite of the sufficiently high level of methods availability in terms of improving the economic mechamism in construction, work on implementing these measures is going slowly and half-heartedly, as was indicated at the November (1981) CPSU Central Committee Plenum. The client ministries, construction ministries and corresponding central departments are called upon to take more energetic steps to comprehensively actualize these measures.

The 11th Five-Year Plan must become a five-year plan of continued perfection of and fundamental improvement in capital construction management. The construction management structure which has developed in the country since 1967 and which has been built on the production-territorial principle, is now unjustifiably complex, has become cumbersome, and a four-link management system predominates in it. Numerous construction organizations subordinate to various ministries operate in parallel in oblasts, krays and republics without oblast divisions. The number of small construction-installation organizations has increased significantly in recent years.

All this indicates the urgent necessity of accelerating the development of and implementing a complex of measures to consolidate construction and installation organizations, raise their level of specialization and bring economic leadership agencies closer to production, eliminating parallelism and strengthening territorial principles in management, which corresponds to the resolutions of the 26th CPSU Congress on questions of improving economic management.

We should first of all increase the role of the basic cost-accounting link of the construction trust production facility (production association), which is responsible for carrying out the construction plan and putting projects and capacities into operation. Along with general, primary construction organizations, such organizations must as a rule also include specialized organizations, production-technological set-assembly organizations, industrial construction industry enterprises, subdivisions for work mechanization, transport and other services. Such an organization will be a full-blooded economic unit capable, when necessary, of concentrating efforts and resources in decisive production sectors.

The fastest possible completion of development of a "Unified System of Developing and Distributing the Material-Technical Base of Construction in the 11th Five-Year Plan and Beyond" under the leadership of the USSR Gosstroy will be of important significance to solving problems of the optimum siting of construction industry enterprises and determining the basic directions in which to develop capacities to produce construction parts and components with consideration of the modern achievements of scientific and technical progress.

We have in mind anticipating in it the creation of large construction and building materials industry enterprises, associations and interrayon bases capable of producing output with a high degree of factory finishing. Factory production of standardized bearing and lightweight enclosure components to be delivered in complete sets must be further developed for building projects in Siberia, the Far East, regions of the North and other regions of concentrated construction with no well-developed construction production base. The production of effective insulating materials must be significantly expanded for construction in regions with difficult climatic conditions, as well as to industrialize the insulation of pipelines and other elements of outside installations and units.

As before, the extensive use of prefabricated reinforced concrete on a qualitatively new basis will play a commanding role in industrializing construction. At the same time, the experience accumulated in our country and abroad in building structures and buildings using monolithic and reinforced concrete indicates the major and, in a number of instances, decisive technical and economic advantages of this construction production technology.

We need to accelerate the release of special types of machinery, equipment, form elements and fittings for transporting and laying concrete in monolithic components, which will enable us to substantially increase the mobility of construction organizations and to reduce the time involved in and cost of erecting projects.

During the 11th Five-Year Plan, we are faced with considerable work on renovating and expanding existing plants to produce local building materials, and foremost construction brick, a traditional material possessing a number of very positive qualities such as durability, good heat- and sound-insulation properties, and a broad range of application in various types of industrial and civil construction, on a new technical basis and with building a number of modern new plants.

Carrying out the program in the 11th Five-Year Plan for producing glued wooden components will be of important significance to increasing capital investment effectiveness and reducing construction time. These components, manufactured at specialized enterprises, are considerably cheaper than reinforced concrete and metal ones and possess good operating qualities. At the same time, it must be noted that many organizational and technical difficulties are being encountered en route to using these components widely, and they will have to be eliminated.

Questions of improving construction production organization are equally important. In the 10th Five-Year Plan, a number of steps aimed at raising the organizational-technical level of production were taken, permitting a slight reduction in construction time and a reduction in labor and material expenditures. There are quite a few examples of progressive forms and leading methods of labor, construction and installation production organization.

At the same time, the organizational-technical level of construction is still rising slowly and does not correspond to the tasks of fundamentally improving affairs in capital construction. In a number of instances, construction-installation work begins without preliminarily developed work plans, leading to failure to observe normal construction technology, and the level of construction machines and machinery use is low, an unjustifiably large amount of manual labor is used, there are losses of working time and construction quality is poor.

The ministries, scientific research, planning and construction-installation organizations must therefore follow a resolute course of changing over construction to a more modern technical basis, of further developing and deepening industrialization, of significantly increasing the volume of construction using new equipment and technology and leading methods of organizing construction and installation work, of lowering labor and all types of material and energy resources in construction, in the years ahead.

Actualization of these measures will require increasing the responsibility of leaders of construction and installation organizations for the strict observance of technological discipline at construction sites, the prompt development and implementation of work plans, strengthening the technological services in construction and installation organizations, and their active participation in choosing the most technologically efficient and economical layout planning and structural resolutions.

We need to firmly establish that the basic jobs of building, expanding and renovating enterprises and installations can begin only after approval of construction organization plans and performance of preparatory-period work. The decisive role in establishing strict supervision over meeting this demand belongs to the financing banks.

We also need to increase the role and responsibility of the technological planning institutes and Orgtekhstroy trusts for putting effective construction production and labor methods and leading experience into construction practice.

Large tasks will require resolution in the area of further developing the comprehensive mechanization of construction-installation work and improving the use of construction equipment. Calculations show that, given proper organization, we can ensure in the 11th Five-Year Plan at least a 17-20 percent reduction in the specific volume of work being done by hand through the introduction of comprehensive mechanization of basic jobs and the use of standard series of means of mechanization and power tools.

It will be possible to increase earthmoving machinery output 6-8 percent, crane output 15-18 percent and the productivity of trucks 10-12 percent by improving the organization of construction-installation work, raising the shift index, reducing intrashift idle time and improving the servicing and repair of construction equipment. At the same time, the creation and series production of new types of construction machinery and mechanized construction and installation tools must be accelerated, the technical level, quality and reliability of the construction machinery being produced must be raised, and the labor-intensiveness of their servicing and repair must be lowered.

In this connection, we cannot fail to note that the construction ministries and their organizations, which should, it would seem, be most interested in accelerating the creation of additional capacities at enterprises producing construction and road machinery, often fulfill plans for their construction and renovation extremely unsatisfactorily.

The 1982 and 1981-1985 state economic and social development plans approved by the sixth session of the Supreme Soviet have become law.

As was noted at the November (1981) CPSU Central Committee Plenum, the large-scale tasks outlined in these plans will demand of each branch, each union republic, kray, oblast, city, rayon, and all labor collectives a multiplication of their efforts to use more fully their reserves and opportunities. Top-priority importance must be attached to improving the organization and business-like nature of production and management and to strengthening state and labor discipline in each sector of them.

The collectives of construction workers and installers, by carrying out these most important instructions of our party's Central Committee, will doubtless cope worthily with the tasks set them by the five-year plan on further developing branches of the national economy and improving the housing, cultural and personal-services standards of living of the laborers of our homeland.

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WESTERN SIBERIA: CONSTRUCTION REPORTED

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Oilfield Road Construction

Moscow AVTOMOBIL'NYYE DOROGI in Russian No 6, 1981 (signed to press 8 Jun 81) pp 7-8

[Article by N. V. Tabakov, V. G. Leytland, E. A. Akhpatelov and N. I. Vorob'yev: "Improving Oilfield Road Construction Organization and Technology in Western Siberia"]

[Text] The oil and gas extraction regions of Western Siberia are characterized by extremely unfavorable natural conditions which exert a substantial influence on the cost, technology and organization of automobile road construction. The provision of petroleum and gas extraction regions with transport is additionally complicated by:

the necessity of building roads often dozens of kilometers from other roads and from the construction administrations (CU's)'

the substantial dependence of construction cost and technology on the time of year the work is being done (as for example, preparatory work, stripping off peat, moving earth on winter roads, and so forth);

the lag of road construction behind the road requirements of petroleum extraction;

the imbalance in construction materials deliveries during the year relative to the time of construction of individual road elements;

inadequately complete standard flow charts and the necessity of improving organizational resolutions;

the relative diversity of earth roadbed designs and, consequently, the variability of road construction technology due to substantial site nonuniformity (thus, 79.1 percent of the 145-km oilfield road to Samotlorskiy oilfield was type I, II or III marshes, 2.5 percent was lakes, 16.9 percent was supersaturated clay, 0.1 percent was permafrost and 1.4 percent was submerged floodplain).

The technological and organizational features of construction must unquestionably be taken into account both in the planning stage and when the work is done. Let's deal with this in somewhat more detail.

Planning-Surveying Work (selecting the road or road network route and the design resolutions, working out the construction organization plan)

It has been established that for sites nonuniform in terms of construction conditions, selection of an automobile road route plan is essentially determined by the roadbed design adopted, the location of the dirt quarry, and a number of other factors. At the same time, the engineering-geological conditions along the road route and the construction method adopted exert a direct influence on the amount of work, number of machines, and the labor expenditures necessary to install the road.

Thus, an analysis of work volume by construction variant of one sector of the road to Samotlorskiy deposit showed that the preferable variant was one using peat in the roadbed foundation. This is to be explained not only by the lesser amount of work involved, but also by the more constant amount of construction machinery needed along the length of the route.

A comparison of designs using just these indicators is unquestionably very conditional, since it does not reflect the reliability of the designs, transport-operating characteristics, subsequent repair and maintenance expenditures, or certain other factors. However, the use of peat soils as the basis of the road design permits organizing a more even load on machinery when laying the roadbed, which should be considered a positive feature of this design.

The regulations currently in effect for planning roads permit adopting for construction that competing resolution in which minimum adjusted expenditures are achieved. Although this does not cause particular difficulties in choosing methods, the lack of a normative base (in terms of expenditures on road repair and maintenance and transport-operating indicators) excludes the possibility of such a comparison, reducing it essentially to a comparison just of construction costs. Moreover, when determining the economic effectiveness of capital investments for the different variants, we also need to take into account indicators describing these variants from the position of the technological effectiveness of their construction. In this instance, technological effectiveness is understood to mean the aggregate of properties inherent to various designs adopted for construction and ensuring their installation is most effective for the SU [construction administration] method. To this can be related the smoothness of the load on machines and machinery, frequency with which different technological operations are performed, ease of quality control, and so forth.

Let us examine this using as examples two design resolutions for building roads in marshes, one in which all the peat is stripped and one in which peat is used as the foundation for the roadbed. Calculations show that it is appropriate (in terms of construction cost) to use peat as a roadbed foundation when as little as 0.25 meter is present. In this regard, the road construction cost for peat foundations includes additional expenditures connected with top-dressing in two stages. At the same time, using peat requires additional monitoring of the run-off embankment thickness and the speed of the run-off itself, as well as returning to sectors already built for the second stage of the top-dressing. Also of considerable importance here is that, in two-stage construction, the SU incurs higher wage expenditures than when the pavement is put down in one stage.

Essential indicators to be taken into account when choosing design resolutions are: length of sectors with the adopted designs, frequency of their distribution, the combination of sectors along the road, and several others.

Under SN 202-76, the construction organization plan is an integral part of the estimate-planning documentation and includes a determination of resources required and the technology, schedules and sequence of construction. The amounts of roadbuilding materials can be estimated quite precisely, and determining them causes no special difficulties in the planning process. Finding the required amount of roadbuilding machinery and human resources is largely conditional and is possible by selecting from the construction norms and regulations individual indicators for work volume done or by analyzing the results of output achieved in the subdivision doing the construction and extrapolating the growth in that output for the calculated year of road construction.

The first way is very approximate in terms of actual requirements, since it does not take into account the fleet of roadbuilding machinery actually available in contractor subdivisions or the output results actually achieved. The second is more precise, but requires the development of a corresponding reference-methods base for determining anticipated output and forming an efficient fleet of construction machinery.

The difficulty in determining construction schedules for individual road elements consists first of all in that the SU is often building a number of roads. Thus, SU-909 of Nizhnevartovskdorstroy trust built 14 sectors of various roads in 1980. The assumption that all projects will be under construction throughout the year is unquestionably unrealistic. Consequently, a work schedule which is close to what will actually occur can be obtained only by examining the construction of all SU projects, which is not part of the task of planning each individual road. This is also significantly complicated by the fact that an SU work plan is required for a period of several years in advance. The above does much to make the construction organization plan a very conditional part of the road construction estimate-planning documentation.

The SU draws up a work plan on the basis of estimate-planning documentation and annual work plans received. In it, they refine the work technology, construction sequence, resources required, and so forth. Both external and internal construction administration factors need to be taken into account at this stage. They can include:

number of projects being built, distribution of construction-installation work volume among them, road designs and results achieved in terms of construction technology;

methods of working quarries and earth transport conditions, roadbuilding materials transport;

amount of construction machinery and building materials and time of receipt;

inventoried building materials, fuel, lubricants, and so forth;

weather forecasts;

internal SU resources (more efficient use of machines and machinery, exchanging leading experience, improving technological and organizational decisions aimed at improving construction smoothness and reducing its seasonal nature) and several other factors.

The indicated tasks can be resolved, in our view, by creating appropriate models and using them to seek out the preferred construction variant. In this regard, two fundamentally different models have been proposed: one for the planning stage and one for the construction stage.

Planning Stage (given the two-stage planning adopted by the Ministry of Petroleum Industry, corresponds to the technical-economic substantiation stage). A site model is compiled which will enable us to find a comprehensive road (road network) construction plan between prescribed frieght-generating points. The creation of such a site technical-economic indicators model can be based on a site simulation method developed as applicable to road construction and oilfield development tasks.

The task under review includes seeking an efficient route which takes into account a number of factors, including those in the indicator of construction technological efficiency. Expenditures adjusted for a single base indicator which take into account construction cost and technological efficiency, expenditures on road repair and maintenance, and certain other expenditures, serve as the criterion of resolution effectiveness. In the first stage of the resolution, when adjusting construction technological efficiency indicators to the single base indicator is difficult, practical resolution of this task is possible through suboptimization. In this case, we first seek out a task resolution without considering technological efficiency indicators and then seek out an initial task resolution through concessions. Thus, in the area of permissible deviations in first-task resolutions (using adjusted expenditures), we optimize the value of the target function using the construction technological efficiency criterion.

Construction Stage. Qualitatively different models, which we shall call construction management models, must be created to develop a work plan. When constructing such models, the initial data are the SU annual programs, road design distribution and construction-installation work volume by road, which were already determined in the planning stage, as well as several other indicators. The optimization task here includes organizing road construction with the least expenditures of forces and funds, with consideration of essential external and internal factors. "Essential" factors are understood to be those influencing end results -- the resolution which determines the sequence of project construction, the required amount of construction machinery and effectiveness of concentrating it along individual lines, and so forth.

In view of the fact that the conditions under which a simulated project (SU) operates are described by dynamic and, in a number of instances, also unregulated values (distribution and dependence of work performance on time, climatic conditions, arrival of resources, absence of sufficient information and a number of others), the construction management model must be dynamic. The methods of implementing resolutions using such models must ensure receipt of an efficient resolution even given the ambiguity of certain initial information by anticipating probable change in the initial data and receipt of an appropriate result. Selection of the final resolution from among the several obtained can by done by SU (or trust) leaders with a forecast evaluation of the economic risk corresponding to it.

As a result of the general concepts presented here, resolution of the task of improving road construction organization and technology can be represented as two stages.

In the first stage (planning), we determine construction resolutions with consideration of the main construction technology provisions. The task is determinate in this instance.

In the second stage (construction), we determine ways of carrying out the annual program set the SU with consideration of external and internal factors, given minimum expenditures of time and effort to do so. Moreover, this resolution enables us to determine the actual annual work plans based on available and anticipated SU resources or to find the necessary amount of additional resources based on annual work volumes (if the plans turn out to be bigger than SU abilities to implement them). This task is one of optimum management in terms of time.

In spite of the diversity of various aspects of activity on which success in carrying out the annual program depends, the basis of SU production activity is the operation of sets of machinery. The effectiveness of SU production activity as a whole depends largely on how successfully their operation has been organized. In this connection, both models must reflect the technology, and the second model must also reflect the organization of efficiently drawn up sets of machinery.

Recording the technological and organizational factors of planning and building oil-field roads under dissimilar conditions in Western Siberia is thus characterized by its multifactor nature and can be done by seeking out a resolution using appropriate models sufficient (within the requirements of the task) to describe the process being studied. The creation of such models and solving them on the basis of planning and construction tasks will, we think, be possible if the following research is done:

1. Formation of efficient sets of machinery for construction under various natural and climatic conditions.

2. Development of criteria describing construction technological efficiency of road design components.

3. Revealing and formalizing external and internal factors having an important influence on SU production activity.

4. Creating appropriate models of site and construction administration technical-economic indicators.

5. Developing methods of using models to seek out efficient resolutions for planning and construction tasks.

The effectiveness of this resolution seems to us to lie foremost in the opportunity for evaluating road designs adopted for construction not only from the position of minimum adjusted expenditures (taking construction cost and maintenance into account), but also the technological efficiency of their implementation for the road, as well as selecting a construction work performance strategy by obtaining construction management model results for various (probable) initial conditions.

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Surgut: Development

Moscow VOZDUSHNYY TRANSPORT in Russian 3 Sep 81 p 4

[Article by Stanislav Mal'tsev, Novosti Press Agency correspondent: "City Born of Petroleum"]

[Text] Twenty years ago, Surgut was a small settlement lost in the Siberian taiga: 300 wood houses, hunters and fishermen. Today, it is one of the major cities of the Tyumen' petroleum region, with a population of 121,000.

It is nearly a thousand kilometers from Surgut to the nearest railroad station, in Tyumen'. In the winter, people here got around on horses; in the summer, they used boats. The weekly steamship arrival was a big holiday, and all the villagers came out to meet it. Small airplanes very infrequently flew into Surgut with express mail and a few passengers.

All that changed with the arrival of a geological expedition headed by Farman Salmanov, a geologist who was firmly convinced that here was the exact location of an enormous geological scoop-trap in which petroleum had been accumulating for millions of years. But he was unlucky, in that the wells drilled were dry. The young geologist was urged not to throw his money away, to abandon his work: there's no oil here, they said, isn't and never has been.

The geologist didn't listen to this advice, and turned out to be right: in the summer of 1961, the first gusher was struck in Ust'-Balyk. And it was as if young blood had immediately poured into the residents of old Surgut. Huge all-terrain trucks dashed about the village's quiet, narrow streets, along with the geologists' powerful tractors towing drilling rigs, scaring the dogs.

Several other oilfields were discovered one after another. They began developing the oilfields proper. Steamships and barges with various cargo and equipment came up the Ob', not once a week, as before, but each day, one after another. Twenty years have passed since then. Salmanov, now greying at the temples, has become a famous geologist, a doctor of sciences and professor. He heads the entire geological service for Tyumenskaya Oblast. He was awarded the title of Hero of Socialist Labor and the Lenin Prize for discovering the petroleum of Tyumen'.

Since the start of operations (in 1964), more than 200 million tons of petroleum (including gas condensate) has been obtained in the Surgut oilfields, including 49 million tons in 1980 alone. If you consider the fact that more than 312 million tons of petroleum, including gas condensate, was obtained in all of Western Siberia in 1980, this means that one in every six tons of Siberian petroleum was obtained in Surgut. Two million cubic meters of gas was extracted here in 1980 and 17 billion kilowatt-hours of electric power was generated. The largest house-building combine in Siberia is producing about 300,000 square meters of housing annually.

The population of Surgut is growing rapidly, by 10,000 to 12,000 a year. And this is basically through young people. The average age of Surgut residents is 26.

A railroad line has been run from Tyumen' to Surgut, with daily passenger traffic. A modern airport can now accept any aircraft. Surgut is linked directly to 20 cities in our country by air.

Muscovite and Leningrad artists often come to Surgut's Palace of Culture and club on tour. Residents of the petroleum region capital have long been receiving Moscow color television transmissions through the Orbita space system. Incidentally, color television sets are in great demand in the stores here.

Of course, life is harder in Surgut than, say, in the European regions of the country. The frozen winter is long here, and the summer is brief and often rainy. So the state has granted city residents many privileges. Wages here are two- to threefold higher than in regions with a moderate climate and the right to a pension comes five years earlier: at age 50 for women and at age 55 for men.

Much is being done in Surgut to make people's lives easier. More comfortable houses especially developed by Leningrad architects are being built: apartment space is greater, the large kitchen-dining areas have electric ranges and there are special clothes closets.

The first fruit and berries are flown into Surgut from the south in the early spring on special aircraft. And in the winter, city residents eat fresh cucumbers from their own hot-houses. The fish store sells live carp the year around, as a fishery has been created in the warm waters of the electric power plant.

Surgut today is a base city for the broad, planned assualt on the new petroleum regions of Western Siberia. The railroad has been extended from Surgut to another new city of oilfield workers, Nizhnevartovsk, and to Samotlor, built at a well-known petroleum deposit. The steel rails now run to Urengoy, the largest gas deposit in the world. And petroleum has also been found here.

Surgut is the energy heart of all of the enormous Tyumen' petroleum region. The 2.5 million kilowatt thermal electric power plant operates in fact on free fuel, the casing-head gas which was formerly burned off in torches at the oilfields.

The current from the Surgut electric power plant moves by large electric power transmission line to the drilling rigs, the oilfields, the petroleum pumping stations and to other cities and settlements.

Of course, as in every large city, Surgut has quite a few problems. All the deposits near the city have already been utilized and people must travel to newer ones, often situated 100-200 kilometers or more away. This means it is hard to run roads there, build electric power transmission lines or bring in the hundreds of thousands of tons of different freight and equipment. And all that is expensive and, more importantly, takes time.

Surgut has great plans for the future. Some 385-395 million tons of petroleum (including gas condensate) will be extracted in Western Siberia in the 11th Five-Year Plan, and Surgut will provide a quarter of that, 96 million tons.

Another power plant will be operating alongside the one now in use, and this one will be nearly five million kilowatts. It will also operate on casing-head gas.

It is proposed that Surgut will have a population of 300,000 by the year 2000.

Construction in Yamalo-Nenetskiy Okrug

Moscow STROITEL'NAYA GAZETA in Russian 9 Sep 81 p 3

[Article by V. Badov: "Quarries At the Arctic Circle"]

[Text] In 1985, Tyumen' construction sites will require 10 million cubic meters of crushed stone. How will it be supplied, when the oblast has always been poor in nonore materials? Looks are more and more often being cast towards Kharp. Here, on the Arctic Circle, are the oblast's only large deposits of rock suitable for producing high-strength crushed rock.

The Kharp Crushing-Grading Factory produced its first "cubics" of crushed rock back in 1970. Four years later, the first road slabs were produced here at the reinforced concrete products plant. A major construction industry base using local raw material began developing. Today, facilities to produce 160,000 cubic meters of prefabricated reinforced concrete have been created in Kharp. At the start of the year, crushed rock production capacity had reached 320,000 cubic meters.

Nonetheless, there has been concern for a number of years now about the development of Kharp construction industry, and there is cause for irritation: the oblast imports an enormous amount of reinforced concrete components and crushed rock from the Urals and more remote regions, and its own nonore materials base in the Arctic Urals provides only a small amount of what is required by the developing petroleum and gas complex.

We began building the 720,000 cubic meter per year second line of the crushing-grading facility back in 1978. A total of about four million of the estimated 20.3 million rubles in estimated cost has been utilized. This year's plan is for 3.5 million, and only a fifth of the funds released was utilized in the first half of the year. The general contractor, Yamalgazstroy, has been slack in working on the second line of the Kharp Reinforced Concrete Products Plant as well.

It would seem that no one would be more interested than the Ministry of Petroleum and Gas Industry Construction in developing its own construction base in the north. In fact, the ministry prefers to rely on deliveries from afar which, by the way, have been worse with each passing year. The immediate manager of the Kharp construction base, Surgutneftegazstroyindustriya trust, has put the consumers of its output in a difficult position at a time when the navigation season is in full swing. Kharp made its deliveries in previous years. But now, it has shipped out only 88,000 cubic meters of reinforced concrete during the first five months, instead of 125,000.

The reason? The plant did not have the needed assortment of steels. Apparently an objective reason for the difficulty here. But what about the crushed rock?

Crushed rock and reinforced concrete are shipped out from Kharp to suppliers during the brief navigation period. Everything produced during the winter is shipped out by rail to Ob' wharves in Labytnangy and from there by Ob' barge to Surgut and Uray, across Obskaya Bay to Nadym and, by a circuitous route, to Urengoy.

And so consumers were alarmed to find out that there is now less Kharp crushed rock on the Ob' wharves, in the navigation period, than is recorded on their job authorizations. And in fact, the Ministry of Petroleum and Gas Industry Construction has unilaterally lowered the production plan of Kharp Crushing-Grading Factory by 40,000 tons of crushed rock. At the same time, consignee job authorizations have a "fallout" of 40,000 tons. Sibzhilstroy association turns out to be in an especially difficult position. Its house-building combines in Uray and Nadym have no other sources of crushed rock besides Kharp and could be left without a full winter's reserve.

The situation took on a sudden urgency when Kharp quarry in January wrote off a mobile crushing installation which had supplied a significant portion of the crushed rock output.

"The installation could not be operated any more due to physical wear," explained I. Katayev, deputy construction industry administration chief for the Glavtyumenneftegazstroy.

In a word, Arctic Kharp, with its enormous supply of rock, is yet to become a pillar of Tyumen' construction industry. The interconnectedness of nonore materials delivery routes in the oblast and the dependence on cooperative reinforced concrete deliveries are still high.

The second stage of development of the Tyumen' complex has begun. The tasks and requirement of the construction sites are growing. We cannot but be alarmed by the delay in establishing the Kharp launching platform. The general contractor for constructing the quarry and the second line of the reinforced concrete products plant in Kharp has only 15 percent of his manpower. Work here is on the special-duty [vakhtovaya] system. Only in January did Yamalgazstroy begin rebasing its SU-38 in Kharp, and signs of a breakthrough are still not in evidence.

The Kharp construction base was recently put under the management of the newly formed Glavurengoygazstroy main administration. The young main administration evidently is acutely aware of the importance of Kharp in resolving the target tasks of gas industry construction in the Tyumen' north and will take effective steps.

Construction Base of Western Siberia

Moscow STROITEL'NAYA GAZETA in Russian 13 Sep 81 p 3

[Article by G. Ovcharenko: "SG Expedition to Western Siberia: Problems, Experience, Proposals"]

[Text] What is the first thing one notices when flying into Western Siberia? The unique landscape? The enormous scope of the construction?

No, say sociologists. All this they glance at and become aware of later. But coming into the city or settlement from the airfield, the first thing to hit their eyes are the balki [small frame hut, often windowless and stoveless].

"People live here?" they ask, disbelieving, pointing to these houses put together with whatever lay at hand, as the saying goes.

"They do," the visitors are told with a frown. "People come by the thousands, and there is work for all, but not always apartments."

As all roads once led to Rome, so today, all conversations at all levels get stuck on the housing problem in Western Siberia. But a real house is not something you draw in the sand. You need people and a reliable construction industry base. To this point, the primary developers of the Tyumen' area -- the USSR Ministry of Petroleum and Gas Industry Construction, and especially the USSR Ministry of Industrial Construction -- do not have enough of either. At the same time, they are far from having used the available forces fully.

SG has already written about all this ("But Overlooked the City," 24 Oct 80, "Tasks of the New Stage," 26 Dec 80, "House-Building Reserves -- To Action!," 25 Mar 81). In these materials, the newspaper quoted the proposals of party and economic leaders of Tyumenskaya Oblast. They essentially said: make broader use of the special-duty expeditionary method of putting up housing, social and cultural projects and direct the labor and material resources thus freed into developing construction industry's own base.

In a word, the main thing has been said, and we decided in these notes from the expedition not to stir up the past, but to look at how the proposals have been implemented.

It is difficult to assume, of course, that radical shifts could have occurred in the management of Western Siberian house-building in such a brief period. Still, shifts for the better are evident.

For example, we learned from summaries from the oblast statistical administration that the Surgut house-building combine, chronically among the laggers, had overfulfilled its program for the first half of the year. An accident? Or perhaps, as sometimes happens, the plan was adjusted?

"Neither," says S. Yeliseyev, party secretary of the house-building combine's reinforced concrete products plant. "The indicators achieved are a result of two years of purposeful work on production modernization and introducing leading work methods and procedures.

Over a two-year period, the reinforced concrete products plant was renovated without stopping production, with 70 percent of the equipment being replaced. Two creative brigades improved a number of technological processes. A new and improved series of houses was mastered. All participants engaged in producing it were united under an integral process brigade contract.

Things are going much better than a year ago in Nizhnevartovskstroy association as well. This year's program was in the end planned with consideration of its opportunities, although it does exceed the level reached last year by 40 percent. An opportunity arose to take up labor organization and developing their own construction industry base in earnest. A house-building combine which was totally unable to begin producing output due to much unfinished construction and planning mistakes was put into proper order.

"There is every prerequisite for meeting the planning assignment for the year, and we will naturally still try to actualize them," we were told by the association chief, N. Fadin.

Everyone we spoke with noted the services of the expeditionary detachments in enlivening the activeness of local builders. First, the country's envoys assumed a significant portion of the housing construction volume and second, skilled specialists always ready to share their skills came to Western Siberia. Siberian construction workers had on-the-job training as part of the expeditionary detachments. And the Nizhnevartovsk large-panel house-building plant began producing output after Minsk trouble-shooters adjusted the equipment and stayed on to operate it.

In sum, Ministry of Petroleum and Gas Industry Construction overfulfilled the contractor work plan for the first half of the year, and organizations of the USSR Ministry of Industrial Construction were close to the cherished 100 percent. But most gratifying of all was that construction industry capacities use increased an average of 17-20 percent. The period of oscillation endured by Western Siberian builders is over. But in order for them to reach the level necessary for further developing the Western Siberian petroleum and gas complex, quite a bit of work still remains.

And not for them alone. Unfortunately, a number of causes long hampering development of the construction industry base in the Tyumen' area have still not been eliminated.

Thus, as before, deliveries of cement, metal and inert materials are not being made. Enterprises fail to produce a single cubic meter of output for weeks on end. The proposal to secure permanent suppliers for Western Siberia has not been actualized, although it would do much to solve the problem.

As before, questions of financing the production base are been resolved poorly. A concrete example.

Western Siberia has a critical deficit of capacities for manufacturing woodworking items. Due to the lack of triple-pane window frames and doorways, many houses are not put into operation for months on end. It was therefore decided at one time to build a wood-processing combine in Surgut; its productivity would have enabled it to fully meet the region's requirements. It was to have begun operating in 1979. Equipment was correspondingly ordered, a significant portion of which was in fact received, and approach tracks and sites for top-priority projects were readied, at a cost of 1.5 million rubles. And then the construction site was mothballed. Why? The ministries financing installation of the wood-processing combine on a shared basis declared they had no funds.

This is not an isolated case. Construction of the second line of a house-building combine in Nizhnevartovsk was halted for the same reason. And it included a number of projects without which the first line could not reach planned capacity. The Ministry of Petroleum Industry has not anticipated so much as a single ruble to develop the construction industry base of the Glavtyumenneftegazstroy.

These examples are given when there is talk of creating a long-range, comprehensive program of Western Siberian construction industry development. It's not hard, they say, to throw together a program, but how can it be carried out when each department pursues only its own interests?

The region's construction complex is like matches spilled from their box. The petroleum is extracted by one ministry, the housing is built by 26 departments. And each has its own construction industry base, poor though it may be. Local leaders try to make the construction complex like the petroleum and gas complex, with subsequent development as a single organism. Then its formation as well can be done proportionally and financing will become simpler. From their view, planning and scientific-research institutes are desirable parts of the complex. Just get rid of as many of the thus far contradictory instructions on what and how to build in Western Siberia as possible, of the delays and lack of coordination in estimate-planning documentation.

The initial successes of the recently created Ministry of Construction in the Far East and Transbaykal Regions have given weight to this proposal. Its subdivisions have come forward with an initiative on putting up housing ahead of schedule and, to judge from what they are doing, they are keeping their word.

"There is another cause for the delay in developing our construction industry base," says Tyumenskaya Obkom secretary Ye. Altunin. "Stagnant thinking. Many think to this day that base cities are needed only to get the petroleum, then they will have to be abandoned. So why build for eternity then, they say. And there's no way you can prove to them that Nizhnevartovsk, Surgut, Nefteyugansk and the other cities are destined for long life, that they already have a permanent population. If only the construction industry base will permit it, branches with a complete production cycle will also develop in the years just ahead.

Expedition participants argued long over what there should be more of in the notes, optimism or pessimism. Today's construction industry base does not meet the needs of the region, said some; it's full of unsolved problems and no one knows when the critical lack of housing will abate. Others maintained that the builders do want to overcome their difficulties no matter what, that there is in fact a gradual but certain growth in the capacities of the construction-installation conveyor.

The pessimists and optimists were reconciled by this incident: when we were returning from the local house-building combine in Surgut, we saw a bulldozer level a block of balki. A couple of years ago, that could simply not have happened....

Housing Construction in Western Siberia

Moscow STROITEL'NAYA GAZETA in Russian 23 Sep 81, p 3

[Review by the expedition staff of responses and official replies to SG special assignment materials on a check of the "Worker Relay" initiative's effectiveness in building housing in Western Siberia using the expedition method]

> [Text] Moscow, STROITEL'NAYA GAZETA. The underdelivery of houses by trust No 37 in the first half of the year arose in part due to the absence of a destination station in the shipping plan and in part due to a lack of rail cars. The Soyuzglavles has now given its permission to make up that delivery in full. However, the combine cannot ship them out since the shipment plan does not specify a destination station and cars are not available. We request an immediate reply by telegraph as to what station to ship them to and for assistance in allocating cars. Biryusinskiy Wood-Processing Combine director Andreyenko.
>
> (from the expedition staff) We cite in this review the official responses only to those special assignment materials requiring immediate measures. As you see, they have been complied with and in the main have had a positive impact on the state of affairs. We will be continuing publication of official responses on steps taken concerning publications by the SG expedition to Western Siberia.

Telegrams like the one above, referring to steps to accelerate the settlement of Langepas, began arriving at the newspaper immediately after publication of materials by the SG expedition special assignment to check the effectiveness of the "Worker Relay" to build housing in Western Siberia using the expedition method.

This means the joint action by newspaper workers and those in the central and a number of republic and oblast committees of our trade union has not disappeared without a trace.

"Your special assignment showed the weak and strong points of interaction among general contractor organizations and the expeditionary detachments and forced us to look at our own work more critically, to seek out new reserves for improving labor productivity and new resolutions to develop the comprehensive brigade contract for housing construction."

This was from a letter by P. Kabakov, assistant manager of trust-site No 3 of the Nizhnevartovsk association. He reports in it that after careful examination of our publications, Nizhnevartovsk and Moscow builders worked out a number of measures permitting improvement in the effectiveness of construction-installation production and meeting the annual plan ahead of schedule, by 25 December.

Judging from reports to the editors, the results of the special assignment have been discussed in all worker collectives. Meetings have reviewed critical observations and planned steps to eliminate shortcomings and further develop comprehensive competition among related organizations. So say the letters to us from Ukrtyumenzhilstroy brigade leader V. Kovalenko, Lenurengoystroy brigade leader A. Koryakin, BSSR Ministry of Industrial Construction No 37 trust carpentry brigade leader M. Volk and others. They talk about the actions undertaken by their collectives following the special assignment. There were many such communications.

Thus, workers in Kaunas House-Building Combine have already introduced an efficiency proposal which will accelerate production of parts for the northern variant of 120-K housing series. Railroad workers on the Tyumen' division were the first on the Sverdlovsk Railroad to master the automated traffic control system which monitors the delivery of freight from the "mainland" for housebuilders of Western Siberia. A number of planning institutes have assumed an obligation to issue estimate planning documentation for the 1983 program ahead of schedule.

"We are doing everything incumbent upon us to justify the high trust and accelerate settlement of the country's main petroleum and gas complex" is how M. Volk concludes his letter on instructions from his comrades. "But unfortunately, not everything depends on us, as the participants in the special assignment wrote. I should therefore like to know how the leaders of departments to blame for the fact that not all the expeditionary detachments have been able to work at full strength have reacted." This request is also made in other letters from construction workers.

We can report that, in spite of the rather brief period which has passed since publication of the special assignment materials, the expedition staff has received about 20 official responses, which continue to arrive in each mail delivery.

BSSR Deputy Minister of Industrial Construction A. Borshch and Ch. Antilevskiy, the chairman of the Belorussian republic committee of our trade union, reported that accelerating renovation of the Gomel'skiy house-building combine has been put under the special supervision of the ministry and public organizations. Next year, Gomel' workers will already be shipping items to build 20,000 square meters of usable housing space to the Tyumen' area. In preparing for its accelerated installation, the collective of trust No 37, which is developing Langepas, is concluding "Worker Relay" agreements with the Gomel'skiy house-building combine and subcontractor organizations and has created a coordinating council to monitor the competition among related organizations and to sum up its results.

[illegible]. Kasatkin, general director of "Tyargale" association in Kaunas, and the association party committee secretary, A. Kashkonas, have acknowledged the criticism aimed at them as justified and promise to meet the order for forms to make road slabs by 15 October of this year. The Kaunas gorkom of the Latvian Communist Party has assumed supervision of the implementation of this decision, we were told by the gorkom secretary, Yu. Yarushevichyus.

Effective, concrete steps have been taken by the UkSSR Ministry of Highway Construction and Maintenance to improve material-technical supply for Ukrtyumendorstroy trust. Deputy Minister A. Legkokonets admitted there have been delays in getting freight for Ukrainian road builders in Western Siberia and reports: "At present, the UkSSR Ministry of Highway Construction and Maintenance is establishing full-time contacts with the ministries of railways and transport construction, as well as with administrations of the Southwestern, Donetsk, Dnepr' and Sverdlovsk railroads. As a result of the implementation of jointly approved measures, freight delivery time to Noyabr'sk had been reduced in August and the allocation of cars for loading had been improved. The questions raised by SG special assignment participants are under the constant supervision of the ministry."

In one special assignment publication, we call the attention of the RSFSR Ministry of the River Fleet to the fact that the slow handling of cargo by Lenurengoystroy trust at the ports of Labytnangi and Nadym threatens fulfillment of the housing construction program in Novyy Urengoy. Sharing the newspaper's concern, RSFSR Ministry of the River Fleet collegium member I. Shchepetov reports that the Irtysh steamship line has allocated Leningraders additional ships for shipping cargo from Labytnangi and that Nadym has worked out and is already introducing a schedule which will ensure fulfillment of the annual Lenurengoystroy shipping plan prior to the end of the navigation season.

An official letter from I. Kuz'min, transport administration chief for the Ministry of Petroleum and Gas Industry Construction, also confirms that the delivery of house components for Novyy Urengoy is being accelerated. He reports that the shipping plan for the first seven months of the year for the interfield Nadym - Urengoy railroad has been overfulfilled. This is a result of the increasing activeness of river fleet workers, railroad workers and construction workers within the "Worker Relay" framework.

The collective of Novosibgrazhdanproyekt Institute was subjected to sharp criticism in special assignment materials not only for failing to cope with its functions as the general planner for Langepas, but also for completely unilaterally refusing to carry them out. The institute's chief engineer, V. Ikonnikov, told us that the facts are true. However, it is not just the institute that is to blame. The fact is that Novosibgrazhdanproyekt, V. Ikonnikov writes, is an oblast-subordination organization whose capacities are very limited. The collective is therefore physically unable to meet Glavtyumenneftegaz orders, which exceeded the institute's work volume by 50 percent in 1982, for example. That alone forced the institute to refuse to act as the general planner for Langepas, as it was clearly unable to perform those functions. Expressing the opinion of the institute collective, V. Ikonnikov says, "I think the special assignment participants were absolutely correct in their reading of the situation and in posing the question of seeking USSR Gosstroy approval of a Belorussian institute as Langepas general planner. In our view, it should be Belgosproyekt. For our part, we promise whatever assistance we can in developing a general plan as a subcontractor."

As you see, the above official responses to the newspaper articles are self-critical, principled and, most importantly, constructive. And the steps taken by the ministries, organizations and departments are already helping strengthen ties among the numerous links in installing housing in Western Siberia by the expedition method.

However, the responses also include ones which could not be called anything but a formal reply. For example, Ministry of Petroleum Industry capital construction administration chief V. Gorishniy wholly shares and supports the newspapers complaints about the ministry's related organizations. But his response to the Ukrtyumendorstroy's proposal that estimate-planning documentation include two stages of highway construction is that this method has long been used by the Ministry of Petroleum Industry. True, he emphasizes, only for roads built in marshy terrain. So why does this rule not apply for envoys from the Ukraine? V. Gorishniy for some reason does not answer that question, although that was precisely what we were waiting for from the ministry.

And the Ministry of Gas Industry has not even begun reviewing special assignment materials, inasmuch as all the organizations indicated in the No 96 issue of STROITEL'NAYA GAZETA on 14 August 1981 are not part of the Ministry of Gas Industry, is the categorical response of complaint bureau inspectorate chief D. Vorzhev. True, they are not. The reference was to organizations building housing for the Ministry of Gas Industry, which are clients of it. And who but the Ministry of Gas Industry is to evaluate the actions of its own contractors?

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CONSTRUCTION

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MONETARY CONTROLS SHOULD RESTRICT DISSIPATION OF FUNDS FOR CONSTRUCTION

Moscow EKONOMIKA STROITEL'STVA in Russian No 11, Nov 81 (signed to press 20 Nov 81) pp 3-9

[Article by M. S. Zotov, USSR Chairman of the USSR Stroybank Administration: "Improve and Intensify Control by the Ruble"]

[Text] The 26th CPSU Congress pointed to the need to increase capital investment effectiveness. The decrees of the party's Central Committee and the instructions of Comrade L. I. Brezhnev about the decisive struggle against the dissipation of capital investment, about concentrating it at the most important production facilities and at construction projects due for early startup, and about reducing construction time and assimilating new facilities should be implemented more persistently and more energetically.

In the field of capital construction as a whole, definite successes have been achieved. Many important facilities in industry, agriculture and transport have been put into operation, and an enormous amount of work in the field of housing construction has been done. In 1980 not only was growth of unfinished construction stopped but a certain reduction of it was achieved.

And this year the builders have written no few remarkable pages in the 11th Five-Year Plan's labor annals. Power units at the Leningrad and Kol'skaya AES's, the Syrdar'inskaya and Ekibastuzskaya GRES's and the Kurpsayskaya GES have gone into operation. New capacity in the gas, oil and machine-toolmaking industries and in light industry have gone into operation, and the Kama automotive complex has been started up at full capacity.

But it still early to speak about well-being in the construction field. The industry is, as before, lagging. Plans to introduce production capacity into operation are not being met, and existing enterprises are being rebuilt slowly. Therefore, completely justified complaints against the builders are being made, about the failure to meet deadlines for introducing new facilities into operation as a result of a lag in the work of many construction organizations, wastefulness, irrational use of resources, a low level of performance discipline and the inadequate responsibility of some workers in carrying out the functions they are charged with.

The data indicate that matters are worse at many projects due for early startup than at facilities not due for startup. Thus, at seven startup projects being erected by USSR Minstroy [Ministry of Construction] contracting organizations in Yaroslavskaya, Vladimirskaya, Tambovskaya and Smolenskaya Oblasts, the plan for construction and installing work for the first half of the year was underfulfilled by 1 million rubles. At the same time, 1.9 million rubles' worth of work above the established tasks was performed at 16 facilities not due for startup and at two facilities not called for by the plan.

Nine construction organizations of Volgogradtyazhstroy [Volgograd Trust for the Construction of Heavy Industry Enterprises], Volgogradmashstroy [Volgograd Trust for the Construction of Machinebuilding Enterprises] and Kamyshinpromstroy [Kamyshin Industrial Construction Trust] of Glavnizhnevolzhskstroy [Main Administration for Construction in the Lower Volga Economic Region] of USSR Minpromstroy [Ministry of Industrial Construction] underfulfilled the plan for construction and installing work for the first half of the year by 28.5 percent at 9 of the most important projects due for early startup and overfulfilled the task 3.4-fold at 11 not due for early startup.

The Promstroy [Industrial Construction Trust] of Vinnitspromstroy [Vinnitsa Industrial Construction Combine] during the first half of the year carried out the plan for construction and installing work at a project due for early startup--the Vinnitsa Chemical Plant of the Ministry of Mineral Fertilizer Production--by only 64 percent, while at a project not due for early startup--the Avtoelektroapparatura plant of Minavtoprom [Ministry of Automotive Industry]--it did so by 175.4 percent. At the same time, the trust carried out the overhaul plan by 193 percent. Similar examples can be cited for other construction ministries also.

USSR Stroybank has given instructions to institutions not to grant credit to construction organizations for any types of loans wherever a diversion of material and labor resources from startup projects to projects not due for early startup is permitted. This is an extreme measure, but under the circumstances it is necessary. These instructions continue in effect also into 1982.

In the time remaining before the end of the year, the full mobilization of all participants in the investment process and of credit-granting and financing organs is necessary in order to ensure fulfillment of the planned tasks and, thereby, to create favorable conditions for successful realization of the 11th Five-Year Plan's capital construction program.

Successful resolution of the tasks in the capital construction field that the 26th CPSU Congress advanced requires improvement of the management of this most important branch of the national economy, a rise in the effectiveness of supervision, and improvement in the style and methods of supervisor activity at all levels. Under these circumstances, the correct establishment of monitoring over the fulfillment of established plan tasks and the execution of adopted decrees and decisions is acquiring special significance.

The CPSU Central Committee decree, "On Further Improvement of Monitoring and Checking of Performance in Light of the Decisions of the 26th CPSU Congress," which was adopted in 1981, pointed out the need to strengthen attention to checking the fulfillment of plan tasks and implementation of the decisions adopted. In accordance with the new USSR Constitution, important measures have been executed for improving the activity of all control organs. The CPSU Central Committee has, at the same time, paid attention to the fact that the work of these organs still does not meet fully the requirements set forth by the 26th CPSU Congress. It is necessary, based upon the congress's decisions and on Comrade L. I. Brezhnev's instructions, to provide for a further rise in the level of organizational work, an intensification of control and checks on performance, and improvement of their forms and methods. The task consists in organically uniting control with practical work on the fulfillment of plan tasks and adopted decisions and decrees.

Control by the ruble has an important place in the system for monitoring progress in fulfilling plan tasks and for making performance checks. This is a special type of control--economic. It should provide monitoring over the amounts of production and of consumption. Its basis is a strengthening of authentic cost accounting and the strictest observance of the regime for saving material and monetary resources. The final result of control is assistance in obtaining high quality indicators at less expenditure of embodied and of live labor.

Control by the ruble is executed by financial organs, banks, ministries, agencies and other economic and control organs. Bank control has its peculiarities. Its difference from other types of ruble control is primarily the fact that it is systematically, from day to day, connected with monetary turnover, which is effected through the bank by all participants of the investment process. Its actions are aimed at checking on how well each contractor, client and designer carries out plan tasks, that is, at checking whether the activity of the economic organs is being performed in accordance with the national economic plan. In the final analysis, this is a check, through the monetary turnover, of progress in fulfilling the national economic plan and, consequently, of observance of proportions in the national economy's development.

In checking the results of the activity of each contracting construction organization and of developers, designers and other investment-process participants, bank organs are called upon to discover still unused reserves, to find cases of nonfulfillment of plan tasks, wastefulness, extravagance and inflated reports, and to react responsively with economic methods to the elimination of these deficiencies, that is, to grant credits and financing differentially, to present financial advantages to enterprises and organizations that are working well, and to use various credit-granting and financial penalties against those that operate poorly and do not fulfill plan tasks. Only such bank control by the ruble will help to increase the effectiveness of construction work and improve the work of design organizations, contractors, developers and construction-industry enterprises.

It must be noted that no small amount of blame for failure to introduce capacity and fixed capital on time lies with the clients: many construction projects are not being provided with design and budget-estimating papers and with equipment on time.

Monitoring by financial and banking organs and the performance check have helped in definite measure to concentrate funds and resources at the most important facilities due for startup and in rebuilding existing enterprises and reequipping them with machinery. Bank institutions have gotten clients to include primarily in the plan construction projects that are due for startup during the plan year and the ensuing year, and carryover and newly started projects only where they have been provided with the necessary capital investment in the full amount.

The mutual monitoring of contractors and clients over precise fulfillment of contract agreements is of great importance. Contractual relationships are an important tool for cost accounting and for planned management of the economy, and a further strengthening of them will help to raise construction performance effectiveness. The regulations about contract agreements require that both clients and contractors bear pecuniary responsibility for nonfulfillment of their obligations. Unfortunately, this is far from being the case in practice. Cases of inflating reports for purposes of fictitious improvement of the work indicators of certain organizations and cases of mutual pardoning by those who participate in construction still have not been overcome. In some cases bank institutions have been compelled themselves to send information to the arbitration organs. The practice of mutual forgiveness engenders irresponsibility and impunity. Ministry and agency supervisors should put an end to this practice decisively. In this connection, it is necessary to raise the work of the juridical services to the proper level. This can be one of the measures that will help to strengthen contract discipline and plan fulfillment. In their turn, banks should, when issuing settlement credits, consider this and condition the granting of credits on fulfillment of contractual commitments.

Monitoring should be aimed at the economical and more rational use of material resources. It is known that construction is a huge consumer of cement, metal and other material resources. Under these circumstances, a saving of just 1 percent of these valuable materials will yield enormous national economic benefit. Checks, meanwhile, indicate that the existing enormous reserves for savings still are not being used completely. They are especially great for reducing the consumption of cement in construction. Overconsumption of cement is caused mainly by using, when making concrete mixes, aggregates that do not meet the requirements of the state standards. For example, aggregate (crushed rock and sand) delivered to the Taganrog Prefabricated Reinforced-Concrete Plant of Stroykonstruktsiya [Constructional Structure Trust] of Glavsevkavstroy [Main Administration for Construction in the North Caucasus Economic Region] of USSR Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises] by the Komsomol'skiy Ore Administration in the Ukraine does not meet the requirements of the standards, as a result of which the cement consumed in preparing concretes is increased by 10 percent over the norms approved by USSR Gosstroy. Such cases have been established at enterprises of the Donetskzhelezobeton Association, at reinforced-concrete products plants of Chimkentpromstroy [Trust for Industrial Construction in Chimkentskaya Oblast] and at a number of other enterprises. Banks should not make payments for products that are not quality standardized.

The economical consumption of material and monetary resources is called upon to help free substantial amounts of working capital tied up in capital construction, which exceeded 83 billion rubles in contracting organizations alone at the end of 1980 and had increased by 25 billion rubles during the five-year plan. The main part of the working capital shows up in the form of uncompleted construction work and stores of construction materials, structure and parts.

Additional favorable conditions are appearing for improvement of monitoring over the use of working capital during the 11th Five-Year Plan. The conversion to settlements between clients and contractors for construction commodity output--for completely finished construction and the turnover for operation of enterprises, startup complexes, phases and facilities that are ready for the production of output or the extension of services--is changing radically the mutual relationships of the bank with economic organs. The abolition of clients' advances and the replacement thereof by direct bank credit for uncompleted performance by contracting organizations is an important step in the further development of the control function of socialist credit, since the possibility of exerting control over all stages of the turnover of funds is being provided for through credit.

The structure of the working capital of contracting organizations also is being changed considerably. While in 1975 the share of credit in the sources for forming it was about 18 percent, with the introduction of settlements for construction commodity output its share will be raised to the level in industry.

However, as a result of the accumulation of surplus reserves of material valuables and of deficiencies in the organization of supply and of settlements, in some cases the turnover rate for working capital and, accordingly, of credits is being slowed. Thus, this year the turnover rate for credit has been slowed in comparison with the first half of 1980 by 2.4 days. Such a situation requires that bank workers analyze carefully the composition of the material valuables for which credit is being granted. Credit should not be used to cover expenditures for above-plan, surplus, stale, unneeded or poor-quality material valuables or those that have been stored under unsatisfactory conditions. The granting of credits for such valuables can be made only in individual cases, provided that the organization develops measures for involving them in the economic turnover.

The fact that in some cases settlements between clients and contracting construction organizations for construction commodity output are performed late demands attention. Thus, for the main general-construction ministries alone, funds equal to 6 percent of the annual volume of construction commodity output have been divertice in settlements with clients. This is explained partly by the faulty practice of turning over facilities with work not completed, because of which settlements are completed over a period of 2-3 months. The bank's institutions have discovered such cases in organizations of the Armenian and Belorussian SSR's and certain Russian Federation oblasts.

The turnover of facilities with unfinished work should be prosecuted to the full extent of the law. Bank institutions are obligated to require that such facilities be excluded from TsSU [Central Statistical Administration] reporting and that the guilty be punished. Moreover, these facilities are subject to quick exclusion from the granting of credits.

One more very important economic problem--providing for a rise in labor productivity--must be dwelt on. It is known that many contracting organizations do not fulfill plan tasks for labor productivity growth, permit increases in the operating costs for output, and do not fulfill plans for accumulations. Checks have established that the work plans of some organizations for 1981 called for the pace of growth in the average wage to outstrip the pace of labor productivity growth. For example, such organizations comprise 18 percent in Mintransstroy [Ministry of Transport Construction].

Such a situation testifies primarily to a lack of proper control by supervisors of ministries, main administrations, associations and trusts over correctness in setting tasks in plans for the work and for the development of measures to insure labor productivity growth. It should be emphasized that such measures have not been called for at all in the first quarter of 1981 in Armenian SSR Minstroy, Latvian SSR Minstroy and Estonian SSR Minstroy organizations.

Many facilities are being erected where there are no designs for organizing construction and no designs for performing the work--basic documents that provide for the correct organization of construction operations. Such a situation is impermissible. Bank institutions should not accept for financing the construction of facilities for which the appropriate documentation has not been completely worked out.

In this connection I would like to call attention to the activity of the orgtekhstroys [state trusts for the industrialization of construction], which are called upon to insure the correct organization of work at the construction site. A check by bank institutions of 37 trusts and trusts and institutes of the Orgtekhstroys of USSR Minpromstroy and USSR Minstroy showed that they were not extending proper help to construction organizations in finding reserves for raising construction performance effectiveness.

Certain supervisors of regional organs for managing construction are using the orgtekhstroys to prepare various types of information for conferences and boards and are charging them with the design of production bases and individual structures, checks on the quality of design and budget-estimating documentation, and participation in the turnover by contracting organizations of facilities for operation.

For example, the Orgtekhstroy Trust of Armenian SSR Promstroy compiled collections of basic indicators for the ministry and engaged in revision of the operating plan of the ministry's central staff. The Orgtekhstroy Trust of Glavsochispetsstroy [Main Administration for Special Construction Work at Sochi] of USSR Minpromstroy, which numbers 93 people, did work in 1980 on the designing of a training and production base for a main-administration training combine, did consultant review of designs for the erection of construction-industry enterprises, and developed a design for the reconstruction of a dormitory.

It is hardly desirable that such a situation should be allowed to coninue. The existing procedure for evaluating the activity and economic incentives for orgtekhstroy trusts and institutes should be changed radically, with a view to establishing a direct dependence of pay upon final results.

The unsatisfactory economic and financing activity of many contracting organizations requires a radical restructuring of economic work and deep and comprehensive analysis of their production activity. Cost accounting must be strengthened, in order to rise up decisively against extravagance and wastefulness, and credit-granting and settlements mechanisms must be used boldly for these purposes.

During the 11th Five-Year Plan the center of attention for bank institutions should still be that of monitoring the correctness of the consumption of monetary resources for the acquisition of equipment and the timeliness of its turnover for installation, and also monitoring the reduction of reserves of uninstalled equipment and the implication of above-standard surpluses in the national economic turnover. At present, expenditures for the acquisition of domestic and imported equipment are covered through bank credit. This means that any failure to meet deadlines for turning equipment over for installation will lead, on the one hand, to a growth in reserves of uninstalled equipment and to the imposition of increased interest (10 percent per annum) and, on the other, to a freezing of the bank's credit resources and a slowing of their turnover rate.

Large reserves of equipment have now been accumulated at construction-project and construction-site storage facilities. The basic cause of the accumulations is the systematic nonfulfillment by contracting organizations and clients of tasks for building enterprises and facilities and introducing them into operation

Growth in reserves of equipment is also, to a great extent, a consequence of serious deficiencies in planning. Cases occur where equipment is brought in for construction projects that were not included in the plan and had not been supplied with design and budget-estimating papers. For example, despite substantial reserves of uninstalled equipment and a lack of urgent requirements for its use in the next few years, USSR Minpishcheprom [Ministry of the Food Industry] continues to conclude contracts for the delivery of equipment for facilities that are not included in the plan.

Bank monitoring should be aimed at the unconditional fulfillment by ministries and agencies of the requirement to plan capital investment for construction projects that are being erected on the basis of sets of imported equipment strictly according to the approved lists of construction project titles throughout the whole period of construction and to insure the introduction and assimilation of the imported equipment within the periods of effect of the foreign supplying firms' guarantees.

Monitoring of the work of design organizations should be intensified. The latter still are not carrying out their tasks of insuring construction with modern designs. The number of designs developed now greatly exceeds the requirements for design documentation for construction projects being newly started. A large portion of this documentation was developed more than 3-5 years ago. The use of obsolete designs makes it necessary to review them during the construction process and it increases the budget-estimated cost. The negative consequences from growth in budget-estimated cost are obvious. This leads to a stretching out of construction time, to disturbance of the rhythm of construction-organization activity, and, in the final analysis, to violations of the proportionality of development of the various branches of the economy.

Suffice it to say that in 1979 alone, for the group of construction projects covered by USSR Stroybank checking, the budget-estimated cost was increased by 6.2 billion rubles, which was more than 34 percent of their initial cost. Often, an increase in budget-estimated cost does not lead to growth in capacity. For example, as a result of a review of the design for the Chuguyevka Fuel-Equipment Plant of Minsel'khozmash [Ministry of Tractor and Agricultural Machine Building], the budget-estimated cost for its construction rose by 47.5 percent, while the capacity was to be increased by only 3.8 percent.

In many cases equipment not proven under production conditions and industrial processes that have not been studied sufficiently are incorporated in designs. Actual productivity of the equipment very often proves to be lower than called for by the design. The unjustified overstating of prices is tolerated. Thus, in the absence of a list of prices, the cost of new equipment in the designs is determined in accordance with tentative prices, and later it is changed by way of an increase. In this case, a situation takes shape in which the equipment manufacturers dictate their conditions to the client. Here is an example. In the revised budget estimate for the Novyy Lipetsk Metallurgical Combine, the cost of many types of equipment exceeded 2-fold to 3-fold the prices set in the price lists for similar equipment. Although the cost per ton of certain types of equipment, a converter for instance, was double the cost shown on a similar price list, the capacity per ton of equipment increased by only 40 percent.

The bank's institutions, in monitoring the quality of design and budget-estimating papers, achieved definite positive results. During the 10th Five-Year Plan, based on selected checks, overstatements of budget-estimated costs totaling 8.9 billion rubles were found, basically with regard to restricted and standardized expenditures, as a result of the incorrect use of budget-estimating norms and cost sheets, extravagances permitted in decoration and finishing work, and overstatements of volumes and areas. Moreover, the unjustified use of 691,500 tons of metal was prevented. All this testifies to the existence of a reserve for reducing the budget-estimated cost of construction. It is necessary only to use more persistently and completely all the forms of monitoring that have proved themselves in practice.

While 11th Five-Year Plan tasks are being executed, further development of credit-granting relations in construction will occur, and the role of credit in the activity of clients, contractors and designers will be raised. This will increase the potential for an intensification of bank monitoring and of its influence on progress in fulfilling the plan for quantitative and qualitative indicators.

The bank's institutions and all investment-process participants should pay special attention to the potential for realizing the decisions adopted when formulating plans for capital construction for 1982 and for later years of the five-year plan. It must be recalled that the plan should include first of all the construction projects of 1982-1983 that are due for early startup, which should be provided fully with design and budget-estimating documentation and material and monetary resources. The number of construction projects to be newly built should be held to a minimum. In this case, new construction projects with a budget-estimated cost of less than 3 million rubles can be started only in exceptional cases, and provided that projects due for startup and carryover projects that are under that restriction are completely provided with capital investment by the appropriate branches of the economy.

An important task that confronts the bank's workers is that of monitoring the timely and high-quality compilation of plans for rebuilding existing enterprises and reequipping them with machinery. Bank institutions and clients should study deeply the engineering status of the branches of the national economy, so that plans may fully reflect the potential for expanding production that is based on the introduction of new equipment and recent scientific achievements.

Monitoring should be constant and, the main thing, active. It is very important that the effectiveness of monitoring, like all economic activity, be evaluated in terms of its final results--the elimination of deficiencies and the improvement of operations.

Intensification of control at all stages of the investment process should help in fulfilling the tasks set by the 26th Party Congress in the areas of the concentration of capital investment and growth of its effectiveness.

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BUILDING-PROGRAM CUTBACKS, METHODS FOR IMPROVING CONSTRUCTION DESCRIBED

Moscow EKONOMIKA STROITEL'STVA in Russian No 12, Dec 81 (signed to press 11 Dec 81) pp 5-8

[Editorial: "Make Actual Radical Advances in Capital Construction"]

[Text] The decree of the November 1981 CPSU Central Committee Plenum, Comrade L. I. Brezhnev's speech at the plenum, and the laws on the State Plan for Economic and Social Development of the USSR During 1981-1985 and the State Plan for Economic and Social Development of the USSR During 1982 that were adopted by the Sixth Session of the USSR Supreme Soviet's 10th Convocation stated the task of achieving actual radical advances in capital construction.

Capital construction is one of the decisive sections of the five-year plan. During the 11th Five-Year Plan 700 billion rubles of capital investment, from all financing sources, are to be assimilated, including 618.4 billion rubles of state investment, which is 11.2 percent more than during the 10th Five-Year Plan.

Gas pipeline builders are to solve especially large tasks. During the 11th Five-Year Plan five huge West Siberia-Central Economic Region trunk gas pipelines and the Urengoy-Uzhgorod gas-export pipeline are to be built and put into operation. These are, as was said at the November 1981 CPSU Central Committee Plenum, certainly central construction projects of the five-year plan, and they must be completed without fail.

The party and the government are pursuing a consistent policy of improving the workers' living conditions. Ninety-three billion rubles have been earmarked for housing construction. Apartment layouts are becoming more convenient. Special attention is being paid to the Siberian and Far Eastern regions. It is planned that 30 million m^2 more housing will be built in the countryside than during the 10th Five-Year Plan.

With a growth of 11.2 percent in capital investment, national income should be increased by 18 percent. The very comparison itself of the rate of growth of national income and of capital investment indicates that the plan adopted incorporates a policy of making better use of all resources. Yet despite definite achievements in construction, there are still enormous reserves. Thus, some ministries and agencies continue the practice of dissipating resources over a large number of construction projects. Construction time often proves to be longer than the established norms. Uncompleted construction has now taken shape at the construction projects of some industrial ministries in amounts that exceed the annual amount of capital investment, and above-norm reserves of uninstalled equipment have been increasing. Because of this, substantial material and equipment resources are not taking part in the country's economic turnover.

The CPSU Central Committee and the USSR Council of Ministers have adopted a number of important measures for providing for a higher concentration of capital investment and for achieving a better balance thereof with material resources, construction-organization capacity, and the work force. The plan for 1982 and the ensuing years of the five-year plan contemplate that capital-investment volume will basically be kept at the level of actual work done during 1980. On the whole, capital investment has been reduced for the 11th Five-Year Plan by 30 billion rubles under what had been initially contemplated. Simultaneously, the concentration of capital investment in projects that are of first priority to the national economy or are due for early startup is to be greatly intensified, and the amounts of new construction are to be reduced. A task for restricting the construction of administrative, spectator and sports type buildings and structures, as well as jobs being erected above state capital-investment ceilings through noncentralized resources, has been established.

A peculiarity of the five-year plan and the plan for 1982 is that, while there is a lesser growth in capital investment, the plans call for a great increase in the introduction of fixed capital into operation. Fixed capital put into use through state capital investment alone will be worth 627 billion rubles, increasing 21 percent over the last five-year plan.

The plan calls for improvement in the industrial structure of capital investment. While the share of construction and installing work in total capital investment was 54 percent during the 10th Five-Year Plan, it is being reduced to 51 percent during the 11th Five-Year Plan.

The share of capital investment for rebuilding existing enterprises and for reequipping them with machinery, where output can be obtained more quickly from the investment funds and expenditure of material and labor resources can be reduced, will be increased. Expenditures for these purposes should increase 21.2 percent, and their share in production-type construction will be 32.5 percent. Appropriations for equipment, the active portion of fixed capital, are being increased accordingly. The share of the state's expenditures for equipment is 39.8 percent. Simultaneously, specific tasks for involving uninstalled equipment most rapidly in the economic turnover and for reducing the amount of uncompleted construction have been set for the ministries and agencies.

The plan calls for measures for further strengthening of the production-equipment base for construction organizations. This will enable the level of the industrialization of construction work and the degree of factory preparation of constructional structure and parts to be raised and the use of new and effective structure to be expanded. The pool of construction machinery and mechanisms will be augmented with equipment and means for small-scale mechanization.

All this should provide for a 3.5-percent increase in labor productivity in construction and 6.3 billion rubles of profit to be obtained from the activity of contracting construction and installing organizations in 1982.

The November 1981 CPSU Central Committee Plenum established this task: the plan for 1982 should be not just fulfilled but overfulfilled. Production capacity at all facilities that are called for by the plan should be put into operation without exception. There is only one way to do this--ensure a most strict savings regime for all types of resources and suppress wastefulness and extravagance quickly and rigorously. Labor, material and financial resources must be concentrated to the maximum on projects that are due for early startup. Such projects must be given everything that is required for most rapid introduction into operation. For this purpose, construction organization mobility must be improved, and equipment and personnel must be shifted promptly.

It is also of no little importance to provide for the preservation of facilities set aside for temporary mothballing. It is also just as important during this five-year plan to create a backlog of construction starts for purposes of normal operation during the 12th Five-Year Plan, especially in the raw-materials branches of the economy.

The country's builders have still another way for making a sharp break in the industry's affairs: increase the effectiveness of construction work and intensify it in every possible way. Measures that are necessary for this were defined by the well-known CPSU Central Committee and USSR Council of Ministers decree about improving the economic mechanism. However, as Comrade L. I. Brezhnev noted in his speech at the CPSU Central Committee plenum, 2 years have passed but the decree is being introduced slowly and half-heartedly. This criticism relates fully also to capital construction. Thus, many client ministries and client enterprises still are not taking proper and effective part in formulating, together with the contracting ministries and organizations, plans for construction commodity output. Yet indeed, planning and evaluation of the activity according to construction commodity output is one of the main tools for organizing the long-term industrial-construction flow line, the systematic reduction of above-standard amounts of uncompleted construction, and a uniting of the efforts of all construction participants to ensure the timely introduction of production capacity and facilities into operation. The experience of many construction organizations of Glavzapstroy [Main Administration for Construction in the Western Economic Region], the Ukraine, Belorussia, and Lipetskaya and Saratovskaya Oblasts testify to the fact that use of the construction commodity output indicator exerts an effective influence on improvement of the rhythmicity of the work of construction organizations, increase in the balancing of plans, and provisioning for the systematic receipt of funds for forming economic incentive funds. By helping to improve the organization of the construction production activity and construction work, the construction commodity output indicator paves the way for growth in labor productivity, the stabilization of collectives, and reduction of personnel turnover. It is urgently necessary, therefore, to study persistently standard practices and advanced experience in the planning of construction commodity output, as a means of supporting introduction of the correct operating sequence in the performance of construction and installing work.

An effective means for improving matters at construction projects, as experience indicates, is the wide dissemination everywhere of the start-to-finish flowline brigade contract, based upon integrated engineering preparation for the construction-production activity. The making up of complete sets of materials, parts and structure directly at the consolidated brigade in accordance with the Vinnitspromstroy [Vinnitsa Industrial Construction Combine] method raises the effectiveness of the brigade contract. However, as analysis and on-the-spot inspections indicate, many construction organizations still do not understand well enough the essence and the advantages of the method, and they show indecisiveness in consolidating brigades. As a result, this powerful lever for increasing the activeness of labor, raising labor productivity, reducing construction time and increasing the rigor of the savings regime is not being used completely.

The conversion of construction organizations to the supplying of materials through USSR Gossnab organs, based upon requirements set in accordance with the designs and budget estimates, has been prolonged unjustifiably. This leads to work progress delays and idle worktime and, at times, it disorganizes the whole construction process. The fact that scarce metals, pipe and other materials have been dispersed partially to reserves at construction-organization warehouses and not to USSR Gossnab bases creates additional difficulties, and it does not permit temporary surpluses in some organizations to be placed at the disposal of other organizations. More decisive guidance on the procedure for supplying construction projects is a major reserve for improving matters in capital construction.

A major interference with construction is the existence of numerous small construction organizations, many of which are under the jurisdiction of ministries and agencies not of the construction type. This paves the way for the dissipation of material, labor and financial resources, and it promotes personnel turnover. The improvement of capital construction management is a most severe problem that awaits solution. And here the builders have a right to make valid complaints against the scientists: competent scientific developments and precise, proven recommendations about the improvement of capital construction management, not only under existing conditions but also under future conditions, are needed. Criticism against science that was heard at the 26th Party Congress and at the November 1981 CPSU Central Committee Plenum require that scientific institutions and each scientist answer with deeds and a rise in the level of theoretical and applied developments carried out for construction.

Improvement of design and budget-estimating matters and the execution of construction work in accordance with more progressive and economical designs are of great importance for increasing capital construction effectiveness. A recently held All-Union conference was dedicated to these tasks, in light of the decisions of the 26th CPSU Congress, the November 1981 CPSU Central Committee Plenum, and the CPSU Central Committee and USSR Council of Ministers decree, "On Measures for Improving Design and Budget-Estimating Matters." Ministries, agencies and design, surveying and scientific-research organizations must persistently implement the recommendations of this conference.

A powerful lever for carrying out the tasks set by the party for builders during the 11th Five-Year Plan and the plan for 1982 is socialist competition.

When the concentration of construction work is being intensified and labor, material and financial resources are being concentrated at facilities due for early startup, the role of socialist competition among interdependent collectives, based upon the "Worker's Relay Race" principle, increases immeasurably. The motto of the competition, "From mutual complaints to mutual assistance and support," meets more completely the task of the day: to put into operation all units of capacity that the plan calls for. For it is in the period of completing construction and of starting up capacity at construction sites that the largest number of interdependent collectives are at work and the most mistakes and the greatest noncoordination of actions are observed. Here also the "Worker's Relay Race" should play its role. It has been called upon to help in incorporating a common high rhythm and in subordinating the efforts of all who have been involved in erection of the facility toward a common goal: on-time or prescheduled introduction of the facility into operation. The experience of many construction projects has shown that the most complicated problems of erecting large facilities and of assimilating them successfully in a short time can be solved successfully by means of the "Worker's Relay Race."

The November 1981 CPSU Central Committee Plenum emphasized that the Soviet people have everything that is needed for successful work: highly developed productive forces, social, political and moral unity, and a precise strategy for moving ahead, which was incorporated in 26th CPSU Congress decisions. It is necessary to strive persistently and purposefully, everywhere and in all ways, for nationwide interests and to struggle decisively against each violation of the adopted solutions, and, even more so, of Soviet laws. In relation to construction, this means an all-around struggle against the dissipation of capital investment, the striving at times to work a "line item" into the list of construction project titles at any price, the nonexecution of measures for labor productivity growth, idle time and unauthorized absences, the squandering of construction materials and cases of inflated reports. The motto of each construction worker, as is the case for each Soviet person, regardless of the post he occupies or where he works, should be the thought that Comrade L. I. Brezhnev emphasized in his speech at the November 1981 CPSU Central Committee Plenum: "It is necessary to work better. To make better plans, and to carry them out better. To organize production better and to produce better. In brief, to work more effectively. These, comrades, are, in the final analysis, the main and decisive things."

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GENERAL METHODS FOR IMPROVING CAPITAL CONSTRUCTION POINTED OUT

Moscow MEKHANIZATSIYA STROITEL'STVA in Russian No 1, Jan 82 (signed to press 7 Dec 81) pp 2-3

[Editorial: "About an Important Segment of the Five-Year Plan"]

[Text] The Soviet people, who unanimously approved the results of the November 1981 CPSU Central Committee Plenum and the 6th Session of the USSR Supreme Soviet's 10th Convocation, are starting the second year of the 11th Five-Year Plan with a new and powerful charge of creative energy for fulfillment of 26th Party Congress decisions and the five-year plan.

As the 26th CPSU Congress defined it, the main task of the 11th Five-Year Plan is to provide for further growth of the Soviet people's welfare, based on the steady, progressive development of the national economy, an acceleration of scientific and technical progress, conversion of the economy to an intensive path of development, more rational use of the country's productive potential, a saving in every possible way of all types of resources, and improvement of work quality.

The state plan, having become an immutable law after it was approved, calls for concrete steps for fulfilling the five-year plan's main tasks: to build up the country's economic potential in every possible way, to develop industrial and agricultural production dynamically, and to solve step-by-step the foodstuffs problem--a central problem of the whole five-year plan in both an economic and a political sense.

The effectiveness that is being planned for the 11th Five-Year Plan is higher than what was achieved during the preceding plan period. This concerns also the pace of growth in the output of the final product in many branches of the economy. National income that is used for consumption and accumulation will be increased in the 5 years by 18 percent, and growth of the decisive indicator of intensification--labor productivity--will permit about 17 million people to be released during the five-year period.

Comrade L. I. Brezhnev in his speech to the November CPSU Central Committee Plenum named capital construction as one of the decisive segments of the 11th Five-Year Plan. He emphasized that a peculiarity of the drafts for the 11th Five-Year Plan and the 1982 Plan is that they call for a substantial increase in the introduction of fixed capital into operation while there is a lesser growth in capital investment. From all financing sources, 700 billion rubles will be invested during the Five-Year Plan. State capital investment will be 618.4 billion rubles, 11.2 percent more than under the 10th Five-Year Plan. Simultaneously, capital investment in construction and installing work originally intended for the five-year plan has been reduced by 30 billion rubles. In the plan for 1982 and for the ensuing years of the five-year plan, capital investment volume is to be kept basically at the level of actual plan fulfillment for the last year of the 10th Five-Year Plan.

It is important to emphasize that for the first time in national-economic planning practice, national income is to grow at a rate that outstrips growth of capital investment. It stands to reason that this will require basically new approaches to the distribution of capital investment and the organization of construction, primarily greater attention to questions of raising capital-investment effectiveness and better correlation of capital construction with material and equipment resources and the capabilities of the construction and installing organizations.

L. I. Brezhnev characterizes these changes in his speech to the CPSU Central Committee Plenum: "In essence there is right now a realistic and better-balanced capital-construction plan. This will create the necessary conditions for normal work."

A considerable strengthening in the concentrating of efforts and resources on construction projects that are first priority or are due for early startup, to which it has been resolved to give everything needed for the most rapid introduction thereof into operation and the most rapid mastery of their designed capacity, should be noted. Among the construction projects most important for the national economy, at which the pace of construction will be accelerated, are the Baykal-Amur Mainline, Atommash, the world's largest nuclear-power and hydroelectric power stations, petrochemical combines, gas and oil pipelines, and ferrous and nonferrous metallurgy facilities.

The share of capital investment aimed at rebuilding existing enterprises and reequipping them with machinery will grow still more. This share of capital investment for production-type construction will be 32.5 percent, versus 29.2 percent during the 10th Five-Year Plan.

As is known, use of the achievements of scientific and technical progress and a reduction in manual labor, in which about 40 percent of all workers in industry as a whole--and even more in construction--are occupied, are playing a decisive role in raising the effectiveness of production and in intensifying it. Therefore, the task of speeding up the development and realization of a specific integrated program for reducing manual labor, especially heavy work, has been established.

The recent All-Union Conference of Design and Surveying Organization Workers emphasized the necessity for specifying that plans for raising the technical level of plans for branches of the national economy should include goals for making broad use of scientific and technical achievements in technology, equipment, constructional structure and building materials. During this five-year plan there should be a considerable increase in the production of new and effective construction equipment, the use of which, together with progressive technology in the construction production activity, should be called for widely during design-documentation development.

Construction practice indicates that the timely introduction of enterprises and facilities into operation depends to a great extent upon the quality of the designs for the organization and performance of the work. The design for organizing construction should become an integral part of the design documentation, it being carefully worked out and consideration given to the construction project's specific conditions and to construction-time norms.

At the same time, the design for performance of the work, in the development of which orgtekhstroys [state trusts for industrial construction] are basically engaged, jointly with construction organizations, should, based upon the existing organizational and technical level of the construction organizations, provide for the introduction of facilities by the established deadlines and promote a reduction of manual labor and the transfer of a portion thereof to factories.

All this is especially important when one considers the unfavorable demographic situation that is taking shape during the 1980's and will affect construction work, where the conditions for work are, as a rule, more complicated than, for example, in industry.

At that same conference, the question of improving budget-estimating was posed sharply. Its basic deficiencies at present are mistakes in determining the cost of construction projects, a fact that tells extremely negatively on the results of capital construction. The responsibility of the client for the design, and of the design organization for the correct determination of construction costs, must be raised considerably, the more so since it is now the ceiling for the whole construction period. The matter was put this way: errors in determining the budget-estimated cost of construction should be viewed as a serious violation of state discipline because of all the consequences that ensue from it.

A most important element of the scientific and technical base for a design is the setting of technical norms. USSR Gosstroy and the ministries have been given the task of refining in 1982 the whole system forsetting technical standards and for standardization in the field of design, having in mind a simplification thereof, a reduction in the number of types of standards documents, the elimination therefrom of duplication and unjustified detail work, and a reduction in the time between the completion of scientific research and experimentation and reflection of the results obtained in standards documents.

As the conference's participants emphasized, these documents should contain only the basic principles connected with design and not restrict creative initiative that is aimed at reducing the budget estimated cost of construction or saving material, labor, and fuel and power resources.

As was noted at the November CPSU Central Committee Plenum, the 1982 Plan, which strictly considers the economy's real potential, calls for a moderate pace in its growth. This, it stands to reason, will require even stricter monitoring of the output contemplated, for the revision of plans, which previously was permitted, is now excluded. The party is setting the task not only of fulfilling but also of overfulfilling the plan for 1982.

The tasks that have been assigned to the builders are important, and their plans are not easy, but they can be carried out realistically. The use in every possible way of advanced experience gained during the 10th Five-Year Plan and during the first year of the 11th, for example, by Glavzapstroy [Main Administration for Construction in the Western Economic Region], whose collective is introducing planned facilities ahead of time or on time, and by the Novyy Lipetsk builders and installers and many other collectives that are overfulfilling tasks, should be a guarantee of successful work.

Under the current requirements for a strict regime for savings and the struggle for thriftiness in each section and at each workplace, the quality of scientific, engineering, design and construction developments must be improved more actively, and the most rational industrial solutions must be applied. The use everywhere of the valuable experience of Gidroproyekt [All-Union Design, Surveying and Scientific-Research Institute imeni S. Ya. Zhuk], which was approved by the CPSU Central Committee, will enable a considerable contribution to be made to the nation's cash box of saved resources and new production reserves to be brought into action.

The patriotic movement for a worthy greeting to the 60th anniversary of the Union of SSR's is yielding a new and powerful impulse of creative activity to the Soviet people. In the vanguard are Moscow worker collectives, including Moszhilstroy [Moscow Housing-Construction Trust], Glavmosstroy [Main Administration for Nonindustrial and Housing Construction in the City of Moscow], Mosprommekhanizatsiya No 3 of Glavmospromstroy [Main Administration for Industrial Construction of the Moscow City Soviet], and Mosotdelstroy [Moscow Trust for Construction Finishing Work] No 3 of Glavmosremont [Main Administration for Housing Overhaul in the City of Moscow], which are promoting socialist competition under the slogan, "Sixty shockwork weeks for the 60th anniversary of the USSR."

The primary tasks for 1982 are to support and disseminate advanced causes and initiatives and to promote more widely socialist competition for fulfilling the 1982 plan ahead of schedule.

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CONSTRUCTION

INSTALLERS MUST CONCENTRATE ON FACILITIES DUE FOR EARLY STARTUP

Moscow MONTAZHNYYE I SPETSIYAL'NYY RABOTY V STROITEL'STVE in Russian No 1, Jan 82 (signed to press 30 Dec 81) pp 2-5

[Article by B. V. Bakin, USSR minister of Installation and Special Construction Work: "The Main Task Is to Fulfill the Plan for Facilities Due for Early Startup"]

[Text] Under the Leninist party's leadership, our country has achieved new successes in developing the national economy, in strengthening the country's defensive might, and in improving the Soviet people's welfare. The historic decisions of the 26th CPSU Congress are being carried out successfully. The November 1981 CPSU Central Committee Plenum examined and basically approved the drafts of the State Plan for the Economic and Social Development of the USSR During 1981-1985, the plan for the country's economic and social development during 1982, and the State Budget for 1982. These plans and the budget were later approved by the Sixth Session of the USSR Supreme Soviet's 10th Convocation.

General Secretary of the CPSU Central Committee Comrade L. I. Brezhnev delivered at the plenum a great speech, which defined the first-priority social, economic and political tasks of the 11th Five-Year Plan and the means for executing them. "The current Central Committe plenum," Comrade L. I. Brezhnev remarked, "can be viewed as a direct continuation of the Congress's work." L. I. Brezhnev's speech, the plenum's decrees and the decisions of the USSR Supreme Soviet's session have been received by the party and the whole Soviet people with inspiration and enthusiastic approval.

The collectives of the ministry's organizations, working persistently to fulfill the tasks for the first year of the 11th Five-Year Plan and using widely the integrated competition of interdependent agencies under the "Worker's Relay Race" principle, fulfilled the socialist commitments adopted in honor of the 64th anniversary of the Great October of completing the installing work at the Volzhsk Synthetic-Fibers Plant, the Kondopoga TsBK [Pulp and Paper Combine], a textile-spinning factory at Andizhan, the Lipetsk City Dairy, and a number of other enterprises. Also fulfilled were the commitments adopted for 1981 to save rolled metal, pipe, electricity and standard-fuel equivalent, to introduce measures for new technology, rationalizers' suggestions and inventions into production, and to train personnel and to raise their skill levels.

In 1981 the ministry's organizations fulfilled the plan for contracting work. According to preliminary data, labor productivity rose by 3 percent for last year for construction and installing work. The tasks for profit and payments into the budget were met.

The installers, jointly with the builders and industrial ministry organizations, provided for the introduction into operation of more than 500 large industrial complexes and items of new production capacity. These included the Nadezhda Metallurgical Plant, the Nikolayev Alumina Plant, an electric furnace at the Orsk-Khalilovo Metallurgical Combine, Altay Coke Battery No 1, iron-ore mining and processing capacity at GOK's [mining and concentrating combines] of the Krivbass [Krivoy Rog Iron Ore Basin], the Surgut Gas-Treatment Plant, new capacity for refining oil at the Baku and Lisichansk Oil Refineries, capacity for rolling metal at the Cherepovets and Novyy Lipetsk Metallurgical plants, the second phase of KamAZ [Kama Motor-Vehicle Plant], facilities for producing ammonia at Tol'yatti and Pridonskoy, urea at Perm' and Berezniki, and textile machinery and spindles at textile mills at Tiraspol' and Dolina, the meat combine at Shumikha, some dairies, and other enterprises. Participants in the construction of many of the facilities due for early startup received the greetings of Comrade L. I. Brezhnev.

The ministry's industrial enterprises realized about 1.7 billion rubles' worth of industrial output. More than 2 million tons of metal structure, 2.7 million m^2 of lightweight structure, a large amount of erecting machinery, tools, and equipment for small-scale mechanization were sent to construction projects. Labor productivity in this industry rose 1.5 percent over 1980's.

In 1981 collectives of Metallurgprokatmontazh [Trust for the Installation of Metallurgical Rolling-Mill Equipment], Soyuzprommontazh [All-Union Trust for the Installation of Industrial Equipment] No 7, Uralkhimmontazh [Trust for the Installation of Chemical Industrial Equipment in the Urals Economic Region], Yuzhtekhmontazh [Trust for Equipment Installation in the Southern Economic Region], Volgoprodmontazh [Trust for the Installation of Production Equipment in the Volga Economic Region], Yugovostokelektromontazh [Trust for the Installation of Electrical Equipment in the Southeastern Economic Region], and Yugmontazhavtomatika [Trust for the Installation of Automation Equipment in the Southern Economic Region], as well as the Perm' Plant for Installation Articles and Automation Equipment, achieved the best results in fulfilling plans for economic and social development and socialist commitments. These collectives were the winners in the All-Union socialist competition, and in the first three quarters of 1981 they won challenge Red Banners of the ministry and the Central Committee of the Trade Union of Construction and Building-Materials Industry Workers.

Many advanced collectives, which came out with the initiative, "Work effectively and with good quality, without laggards," worked selflessly. More than 5,000 brigades carried out the year's tasks for 1981 by 1 November. Among the advanced workers in socialist competition were the brigades of Heroes of Socialist Labor B. N. Grigor'yev from Metallurgprokatmontazh Trust and N. I. Kovalenko from Yuzhtekhmontazh Trust, P. K. Martsenkevich's brigade from Soyuzteplostroy [All-Union Trust for the Installation of Heating Equipment], the brigade of USSR State Prize Winner V. A. Orlov from the Yuzhuralelektromontazh [Trust for the Installation of Electrical Equipment in the South Urals Economic Region], and many others.

Our motherland's workers have much to do during the 11th Five-Year Plan.

The primary tasks, as CPSU Central Committee General Secretary L. I. Brezhnev emphasized in his speech at the CPSU Central Committee plenum, are fulfillment of the production program and development of the fuel-and-power complex. The ministry's organizations are to make their contribution to the solution of these most important tasks.

During the 11th Five-Year Plan new capacity for the production of more than 35 million tons of mineral fertilizer should be put into operation, and the production of phosphorite ores and fertilizers is to be greatly developed. It will be necessary to provide in 1982 for the introduction of capacity for producing almost 4 million tons of mineral fertilizer and more than 6 million tons of raw materials therefor, including high-capacity ammonia installations in Angarsk and Kemerovo, and for producing granulated nitrogen-phosphorous-potassium fertilizer at the Meleuz Chemical Plant. The introduction of capacity for the food branches of industry--meat, whole-milk products, cheese, canned goods and sugar--will grow during the five-year plan. In all, 450 large facilities are to be put into use in these branches of the industry. In 1982 new capacity is to be introduced into operation at meat combines in Brest and Dimitrovograd, and dairies in Kaluga, Rybnitsa and some other places. The introduction of 30 large livestock complexes and poultry factories is called for.

It is planned to introduce during the 11th Five-Year Plan more than 270 production facilities for refining crude oil and obtaining benzene, oil and other petroleum product with capacity that will greatly exceed that introduced during the 10th Five-Year Plan. In 1982 two of the largest catalytic cracking installations, at the Moscow and Pavlodar NPZ's [oil refineries], capacity at the Achinsk NPZ and the Orenburg Gas Plant, and a number of compressor stations on trunk gas pipelines will go into use. The plant at Baku for deepwater foundations should be ready for introduction in 1983. Large amounts of work are to be done at the Kansk-Achinsk, South Yakutia and Ekibastuz strip mines, including work on the erection of high-capacity excavators.

The solution of these tasks requires the intensive development also of such branches of industry as metallurgy, machinebuilding and some others. In 1982 provisions should be made for introducing capacity (for mining iron ore and producing concentrate) at the Stoylensk, Donskoe and Kostomuksha GOK's and the pelletizing plant at the Oskol EMK [electrometallurgy combine] and for producing methanol at Gubakha and Tomsk, the first phase of the Krasnoyarsk Heavy Excavator Plant, cement plants at Krivoy Rog, Savinsk and Nikolayev, capacity for producing paper and cardboard at Syktyvkar, Kiev, Leningrad and Kondopoga, textile machinery at factories in Donetsk and Kobrin, and many other items of capacity.

Comrade L. I. Brezhnev named capital construction as one of the decisive portions of the five-year plan. In his speech to the November 1981 CPSU Central Committee Plenum L. I. Brezhnev noted: "...right now there is a realistic, better-balanced plan for capital construction. This paves the way for normal operation," and later he emphasized the necessity "...to achieve actual radical shifts in capital construction and to put production capacity into operation at all facilities specified by the plan, without exception." Collectives of the ministry's organizations and enterprises accepted the instructions of CPSU Central Committee General Secretary Comrade L. I. Brezhnev for undeviating execution.

In order to provide for fulfillment of the plan for facilities due for early startup, it is necessary first of all to complete as quickly as possible, together with general-contracting organizations and clients, the development of joint measures and integrated schedules for the execution in 1982 of construction and installing work at facilities due for early startup and the fulfillment of schedules for the shipment to these projects of equipment, structure and materials, completely in accordance with the established deadlines for putting the production capacity into operation. A maximum concentration of labor, material and financial resources should be provided for at construction projects due for early startup, which should be supplied completely with the necessary equipment.

Ministries and main administrations for installing and special construction work of the Union republics, USSR Minmontazhspetsstroy [Ministry of Installation and Special Construction Work] main administrations, regional main administrations, and production-control administrations are obligated to monitor constantly and actively the status and organization of work at construction projects due for early startup and to increase exactingness toward the observance of plan and performance discipline.

A key indicator of production effectiveness is labor productivity growth. It should be achieved on the basis of wide use of scientific and technological achievements and advanced experience, the comprehensive mechanization of operations that are still performed manually, and a rise in the level of work organization. The collectives of the ministry's organizations and enterprises are working constantly to accelerate technical progress, and they have accumulated great experience in this field. This work must be intensified and great purposefulness imparted to it.

The work of the installers with the branch ministries and their design institutes to raise the level of factory preparation and increase the use of modules delivered for the installation of equipment and to consider in the designs for industrial installations those conditions that will permit them to be installed by progressive methods gives positive results. A number of new standards and specifications have been developed for shipping industrial equipment. However, machinebuilding plants do not always adhere to the requirements of the new standards documents, and the installing organizations do not make the proper demands on the plants.

Work with the branch ministries enables installation time to be cut, installation costs to be reduced, and labor productivity to be raised. But this work must be done persistently, and the machinebuilding plants must be induced to carry out the approved decisions.

The completely outfitted module method of erecting facilities is extremely promising. Work on its introduction is being performed successfully, jointly with USSR Minneftekhimprom [Ministry of Petroleum Refining and Petrochemical Industry]. In some installing administrations the prefabrication of unitized modules has been organized. The ministry's organizations are to do much work on technical organization in order to introduce this method widely into construction practice. There are many achievements in the field of installing large-dimension heavyweight equipment. For the first time in the Soviet Union, Vostokneftezavodmontazh [Trust for the Installation of Oil-Refinery Equipment in the Eastern Economic Region] and Sibneftekhimmontazh [Trust for the Installation of Petrochemical Equipment in Siberia] nstalled at Ufa and Omsk equipment items that weighed 720 tons each and were 102 meters high and 7 meters in diameter, using a set of towers with a load-lifting capacity of 1,000 tons.

Methods for installing heavyweight equipment with boom cranes that can lift loads to greater heights have been widely disseminated. During construction of the Kuybyshev Nitrogen Fertilizer Plant, a crane with a load-lifting capability of 250 tons installed some sets of equipment that weighed up to 480 tons. The construction and installing association Spetsmashmontazh [Association for Installing Special Machinery] and the Order of Lenin Trust No 7 have mastered the mechanized welding of globular tanks 2,000 m^3 in volume without rotating them. Sevkavtekhmontazh [Trust for the Installation of Equipment in the North Caucasus Economic Region] has developed and introduced an effective method for erecting cylindrical tanks by unfolding the rolls in a horizontal position.

Installing organizations are working successfully to raise the level of industrialization of pipeline operations. Mechanized lines for the manufacture of pipeline components have been organized well at Lipetsk Administration No 1 of Metallurgprokatmontazh Trust and the Baltic Administration of the Order of Lenin Trust No 7. Such lines should find wide application in all installing administrations.

There have been no few technical achievements in the matter of erecting metal structure. Conveyorized methods have received qualitatively new development. Modules that have reached 96 meters in span and that weigh 550 tons and are to be used to build industrial facilities are being assembled on a conveyor. Using large-module methods, structure for specially built television towers was erected in Alma-Ata and Tashkent and--using helicopters--in Khar'kov. When a production building was being erected in Kiev, roof structure was erected in modules of 54x96 meters that weighed up to 1,200 tons. They were installed by means of step-type belt-driven hydraulically operated hoists. During construction of the Yuzhnyy GOK, the erection of large-module transporter galleries, 60 meters in span and weighing up to 160 tons, was applied, using SKG-100 cranes.

V/O Soyuzspetslegkonstruktsiya [All-Union Association for Supplying Special Lightweight Structure] enterprises, jointly with Glavelektromontazh [Main Administration for the Installation of Electrical Equipment] and Glavpromventilyatsiya [Main Administration for the Installation of Ventilating Equipment] worked out in a short time standard designs for so-called module-buildings.

Such buildings, completely outfitted with all the structure and sanitary-engineering equipment, including heating and electric-lighting equipment, will be sent mainly to construction projects of light industry and the food industry. The first sets of such buildings have already arrived at construction projects in 1981, and in 1982-1983 deliveries should be 500,000 m^2 per year. It is a matter of honor for V/O Soyuzspetslegkonstruktsiya collectives to execute this task successfully, thereby making a considerable contribution to the matter of raising the Soviet people's welfare.

Glavelektromontazh organizations should expand in every possible way the volume of introduction of multiple-layer lining for wires and cable instead of single-layer lining, improved cable-head structure, plastic pipe to replace steel pipe, the mechanized lining of cable, installing guns, general-purpose prefabricated structure for the installation of shop power grids, and electrical components made of lightweight structure.

Further growth of labor productivity during the installation of KIPiA [control-and-measuring and automation equipment] should be provided through increases in the amount of fully prefabricated installation of automation systems, with the facilities supplied in complete sets with consolidated components, articles and materials, the containerized delivery of materials to the facilities being erected, the use of multiple-core trunk cable, thermally shrunk tubing for the termination of control cable, and the preliminary mechanized bunching of the installing wires.

The Glavpromventilyatsiya organization, during construction of the Lys'va Turbine-Generator Plant, placed ventilation equipment in special modules that were installed in the intertruss space. These modules, assembled in the roof on a conveyor, enable the area of departments to be greatly decreased and labor expenditure for installation to be reduced. Also extremely economical are general-purpose small-dimension fitted ventilation chambers. They are 1.5-fold to 2-fold lighter in weight and 2-fold to 3-fold smaller in area than the traditional ones. Wide use must be made of this economical structure.

The introduction of organizations that install heating equipment and do thermal insulating work should make a substantial contribution in the matter of saving fuel and power resources. The introduction of industrialized structure for heat barriers for industrial furnaces that use fibrous heat-resistant materials and yield a substantial reduction in fuel consumption must be expanded in every possible way. The timely introduction into operation of facilities due for early start-up is slowed down in some cases because of the lag in heat-insulating work. During the 11th Five-Year Plan, the level of industrialization of this work must be brought up to 45 percent versus the 15 percent of 1980. In connection with this, the most important task of production workers, insulating workers, and Teploproyekt [All-Union Scientific-Research and Design Institute for Heat-Engineering Structures] is the further improvement and development of new, highly productive lines for manufacturing industrialized heat-insulating structure and of progressive methods for installing it.

In the area of special construction work, provisions must be made for developing and introducing new and effective equipment for running trenches during the construction of underground equipment by the "wall-in-the-soil" method, and also for drilling holes for blasting operations, the erection of tall reinforced-concrete structures in slipforms must be increased, new types of suction dredges for underwater excavation of soils at great depths must be mastered and the technology of tunneling deep underground mine shafts under complicated conditions must be improved.

The acceleration of technical progress and the rise in labor productivity associated therewith in all types of installing and special construction work depends directly upon the effectiveness of the work of the ministry's scientific-research and design-development institutes. The successful introduction of new equipment, measures for which were indicated above, has been accomplished basically in accordance with the institutes' developments. The conference of supervisors of these institutes that was conducted in October 1981 at the ministry indicated that there are many reserves for improving their work. In the institutes' work plans the pace is at times weak and second in priority, the introduction of finished developments is stretched out, and the experience of similar organizations is not used adequately in designs for work performance. Some developments have been prepared poorly for introduction--there are no detailed drawings or tests of models. The

Head institutes are not active enough in implementing an engineering policy that is unified with that of the republic institutes. The progressive experience of Belorussia's installers in introducing continuous three-year planning for measures for the development and introduction of new equipment is not being used. The supervisors of the main administrations and institutes subordinate to them have been required to overcome these deficiencies and to aim creative study and the high skills of the institutes' workers at solving the main, basic problems that production workers face.

The ministry's organizations are paying daily attention to questions of improving work and reducing worktime losses, which is giving positive results. During the first half of 1981 within-shift worktime losses were reduced 14 percent below those of the same period of 1980. Losses from unauthorized absence also were reduced somewhat. However, worktime losses as a whole are still great. Analysis indicates that almost half of all worktime losses occur because of labor-discipline violations and deficiencies in organizing the work, through the fault of line personnel.

Experience of recent years has confirmed that the most effective method of improving work organization is the brigade contract. In working by this progressive method, the workers themselves are the work organizers and they persistently compel engineers and technicians of sections, administrations and trusts to be engaged more purposefully in these questions. During the 10th Five-Year Plan, construction and installing work volume performed by the brigade-contract method almost doubled, and during the first half of 1981 it increased 3.5 percent over the 1980 level. Output per worker in cost-accounting brigades was 10-15 percent, and the wage fund was 2.9 percent higher than the ministry average.

The start-to-finish flowline brigade contract was used successfully during the construction of a sheet-iron department in Karaganda. The school for advanced experience that was conducted here indicated that the introduction of this more effective type of brigade contract will enable the lag in construction operations that has been permitted to be cut, the installation of equipment to be speeded up, the use of material resources to be improved, and the labor productivity of all performers to be raised. The start-to-finish flowline brigade contract should become the basic form for organizing work at all facilities of the 11th Five-Year Plan that are due for early startup.

One of the most essential factors in labor productivity growth is a rise in all possible ways of the level of mechanization--primarily of operations that are being carried out manually--and the introduction of effective mechanisms, tools and small-scale mechanized equipment. Ministry organizations are operating more than 17,000 erecting cranes, about 2,700 pipelayers, more than 2,000 automotive hydraulically operated hoists and telescoping towers, and much other equipment. The pool of cranes grows each year, and their specifications are raised. Maximum load-lifting capability of cranes has reached 320 tons, and the average has grown to 17.9 tons. In 1981 the use of erecting machinery improved in comparison with 1980 in output, and boom-crane productivity rose. However, as a whole, the level of machinery utilization is still below the standard. The lowest use of erecting mechanisms in terms of time and productivity is found in installing organizations of Belorussia and Uzbekistan, Glavneftemontazh [Main Administration for the Erection of Oilfield Equipment], Glavstal'konstruktsiya [Main Administration for the Manufacture of Steel and Intricate Reinforced-Concrete Structure in Industrial Construction], and Glavspetspromstroy [Main Administration for the Construction of Special Industrial Installations].

With a view to raising further the level of work mechanization, it is necessary to update the machinery pool, to equip it with mobile cranes of greater load-lifting capability, and to master the production of new machinery and mechanisms, including those for electrical-installation, heat-insulation, sanitary-engineering and other special operations, as well as for various storage operations. Along with this, the utilization of erecting mechanisms must also be improved. This is one of the basic tasks of the chief mechanical-engineers' services.

The ministry's industrial enterprises are producing a large amount of mechanized erecting tools and small-scale mechanized equipment. Output volume of these products rose by 42.8 percent during the 10th Five-Year Plan, and the products mix increased from 380 to 450 items. However, the requirements of installing organizations still are not being satisfied completely.

The ministry has confirmed a coordinating plan for operations for a further reduction in the amount of manual labor performed during the 11th Five-Year Plan. Tasks for developing new and modernizing existing tools and small-scale mechanization equipment, as well as for organizing and improving the tool-stock activity in the installing administrations have been established.

Industrial enterprises are obligated during the 11th Five-Year Plan to double the output of erecting equipment, tools and accessories. The tool plant at Kropotkin that was recently put into operation will have a leading role in resolving this problem. The collective of this plant should assimilate its capacity as quickly as possible and produce tools of high quality, on a par with the best domestic and foreign models.

Improvement in the use of the capacity of the ministry's industrial-type enterprises is a substantial reserve for raising the effectiveness of installing and special work. The ministry's organizations have at their disposal a production base that is diverse and well equipped. However, the use of this base's capacity is at the 80-85 percent level and at some enterprises (of V/O Soyuzspetslegkonstruktsiya, V/O Soyuzstal'konstruktsiya [All-Union Association for the Production of Steel Structure], Glavtekhmontazhes in Armenia and Uzbekistan, and other organizations) it is still lower. Main-administration, association, ministry and Union-republic main-administration supervisors must analyze in detail the activity of subordinate enterprises and work out and implement measures for improving the utilization of their capacity, remembering that this is a much more rapid path for building up production volume than the construction of new enterprises.

CPSU Central Committee General Secretary L. I. Brezhnev, in addressing the November 1981 CPSU Central Committee Plenum, said, "...in working on fulfillment of the five-year plan, we should simultaneously improve the economic mechanism, the system for controlling the economy." The need for constant improvement of the economic mechanism has posed to the ministry's organizations the task of further raising production effectiveness. Its solution should help, in particular, to improve the use of the construction commodity output indicator, which was introduced for all contracting organizations as of 1 January 1981, in planning and accounting.

Last year, because of a lack of experience and because of analysis that was not precise enough and not always objective, this progressive indicator did not exert its proper influence on the fulfillment of tasks for putting into operation facilities due for early startup. The supervisors of construction and installing organizations and their planning and economic services should strive to increase the incentive role of construction commodity output by raising the level of planning and accounting for tasks in accordance with this indicator. Similar work should be done at the ministry's industrial enterprises to further improve the planning of work indicators with the use of standard net output.

A solicitous attitude toward the public welfare and skill in making complete and desirable use of everything that we have are at the core of the economic policy that was announced from the rostrum of the 26th CPSU Congress. The collectives of all the ministry's enterprises and organizations are obligated to achieve persistently, in every way possible, savings of material, fuel, power, labor and financial resources by introducing progressive equipment and low-waste or wastefree technology.

High labor productivity is linked directly with the kind of conditions that are created for workers and with how their work, living conditions, recreation and concern for children have been organized. The ministry has developed for the five-year plan a program for the social development of laboring collectives. It calls for ways to solve concrete tasks of improving working conditions, maintaining health, raising the skill levels of personnel, and building housing, children's preschool institutions, dining rooms and Pioneer camps.

Special attention should be paid to the creation of subsidiary farms. A number of the ministry's organizations in Rostovskaya Oblast, Khabarovskiy Kray and certain other places are actively occupied with these questions and have results that are quite good. Their experience should be used widely. This task is not simple but it is extremely urgent. The ministry's board, jointly with the Central Committee of the Trade Union of Construction and Building-Materials Industry Workers, has approved a set of measures for further improving the organization of personal amenities and the leisure time of blue-collar and white-collar workers who live in dormitories. A Central Council has been established within the ministry that is charged with coordinating the work of the collectives of the ministry's organizations and enterprises in making up plans for social development and in realizing them.

However, the very best programs and solutions will not yield the proper results unless the production collectives and their social organizations show initiative and persistence in implementing the measures contemplated. In organizing this work, the words that Comrade L. I. Brezhnev spoke at the 26th CPSU Congress should be remembered constantly: "...people work better and more willingly where they sense constant concern about improvement of their working and living conditions."

The decree of the November 1981 CPSU Central Committee Plenum stated: "The CPSU Central Committee expresses firm confidence that communists and all workers will promote socialist competition still more widely and will mark the 11th Five-Year Plan with shockwork and new successes in the drive to fulfill 26th CPSU Congress decisions."

The collectives of USSR Ministry of Installation and Special Construction Work organizations and enterprises will do everything that depends upon them to justify the party's faith. Their high political and production activity, wide use of advanced experience, labor discipline and a high state of organization are a reliable basis for fulfilling the tasks of the second year of the 11th Five-Year Plan.

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CONSTRUCTION

SYSTEMS FOR USING MONOLITHIC CONSTRUCTION OF HOUSING OUTLINED

Moscow STROITEL'STVO I ARKHITEKTURA MOSKVY in Russian No 9, Sep 81 (signed to press 4 Sep 81) pp 20-21

[Article by Engineer Ya. Tsirik and Candidate of Architecture B. Brandenburg (TsNIIEPZhilishcha [Central Scientific-Research and Design Institute for Standard and Experimental Design of Housing]): "Systems of Monolithic Housing Construction"]

[Text] Experience in the design and construction of housing that has been gained in our country and abroad in the past decade has shown the effectiveness of monolithic reinforced-concrete and industrialized housing construction. Being an effective means for supplementing fully prefabricated erection of housing, it is especially suitable in definite construction-design situations that are marked by inadequacy in or undesirability of the development of a base for large-panel construction. Monolithic housing construction helps to industrialize the appearance of the housing development, to create diversity in it and to erect buildings that play a role in urban-development accents. This method is distinguished by economy in the consumption of reinforcement steel, capital investment and adduced expenditures.

Different variants and methods for erecting the structure of the buildings with sliding, large-board, three-dimensional adjustable and modular formwork have now been officially accepted. Based upon comprehensive research, substantiated recommendations for the construction of buildings with them in ordinary and in seismic regions have been developed.

The organizational structure of monolithic housing construction also is being strengthened. Some construction ministries have approved integrated programs for providing materials and labor resources to construction projects for monolithic buildings during the 11th and 12th Five-Year Plans. It is proposed that, for the country as a whole, at least 3.5 million m^2 of total effective space will be made from them in the country during 1981-1985. Large areas in Moldavia, Kazakhstan, the Donbass [Donets Coal Basin] and the Crimea's South Shore, and in cities in the south of Russia and the North Caucasus, and in other places have been outlined where intensive construction of such facilities is being planned and conversion from the construction of separate buildings to the construction of whole complexes has been executed.

At the same time, realization of the virtues of monolithic housing construction is hampered considerably by the absence of a precise system that will cover the complex of questions about design and construction. This situation leads to random individual methods, particularly in the matter of structure and the technology of erection, a spreading of indicators, and excessive expenditures for design and mastery of the engineering tasks. The lack of optimal unification of constructional-technology solutions leads to an overconsumption of steel in structure, to superfluous sets of formwork, to indeterminacy in the evaluation of economic indicators, and so on.

It must be noted that abroad, systems are being developed as progressive methods for erecting monolithic housing are being assimilated, for example, in the Hungarian People's Republic, the Polish People's Republic, and other countries. They consist of a set of architectural and operating solutions, based upon a unified modular grid, with standardization and unification covering the construction and layout elements of the buildings, the design of the formwork, and the processes of doing the work.

In recent years TsNIIEPZhilishcha has been developing a methodology for regional systems of monolithic housing construction (SMD).

In accordance with the "Unified Terminology in Construction and the Building-Materials Industry of CEMA Member Countries," a system of industrialized housing construction is "a combination of a definite construction method with a definite constructional system with a specific technology for the construction work, which is provided with standard design documentation that has been developed according to definite standard practices and appropriate methods for applying them during the creation of designs for the construction." In relating this definition to the sphere of monolithic housing construction, it should be considered that SMD is an arrangement of mutually coordinated architectural-layout, construction and technological solutions for monolithic or prefabricated-monolithic buildings and organizational measures for their realization.

Unlike the large-panel housing construction system, SMD should be, in our opinion, aimed basically at the unification of constructional-technology solutions, leaving maximum freedom of choice in architectural-layout parameters. Observance of the modular dimensions incorporated in the set of formwork will enable the individualization of architectural volumes within a complex of monolithic or prefabricated-monolithic apartment houses that is being created on a specific land section.

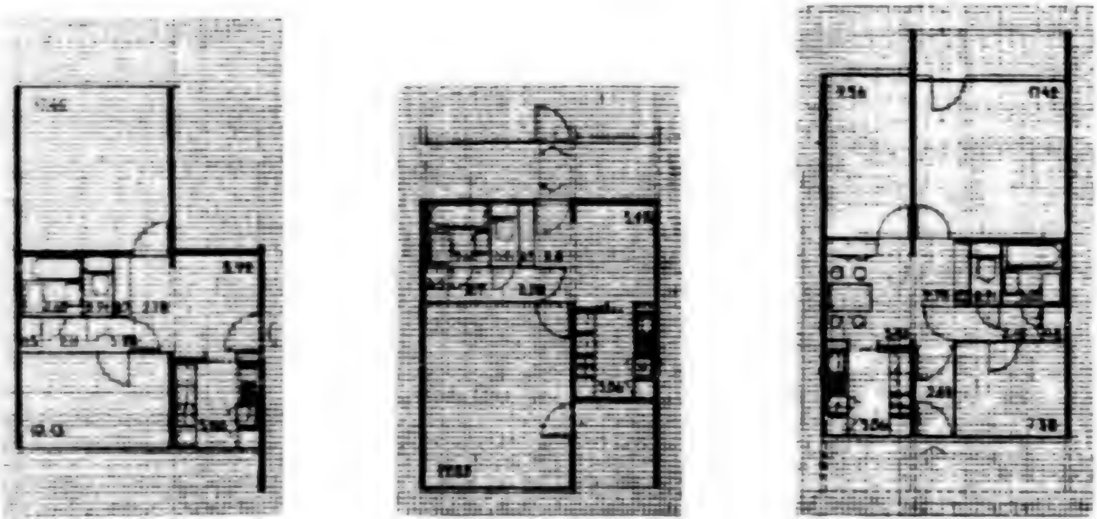
The task of SMD is to insure a high level of urban development and operating qualities of the buildings and of complexes of them. Carrying this out depends upon:

the existence of a nucleus of SMD that unites all its elements (for example, a single horizontal modular grid); and

a constructional system for the building that is optimal with regard to adduced expenditures and to insuring operating and technical qualities and the use of a systematized unified formwork that will insure a prescribed set of three-dimensional layout solutions that will satisfy the needs of the specific development.

The development and introduction of such an SMD are a multistep process that consists of several stages:

technical and economic substantiation of monolithic housing construction in a region for the period being planned. Determining factors here are the amounts



Apartment type A Apartment type B Apartment type V

Figure 1. Examples of Unified Layout Solutions for a System of Prefabricated-Monolithic Housing Construction Used in Building the City of Sombatkhey (Hungarian People's Republic).

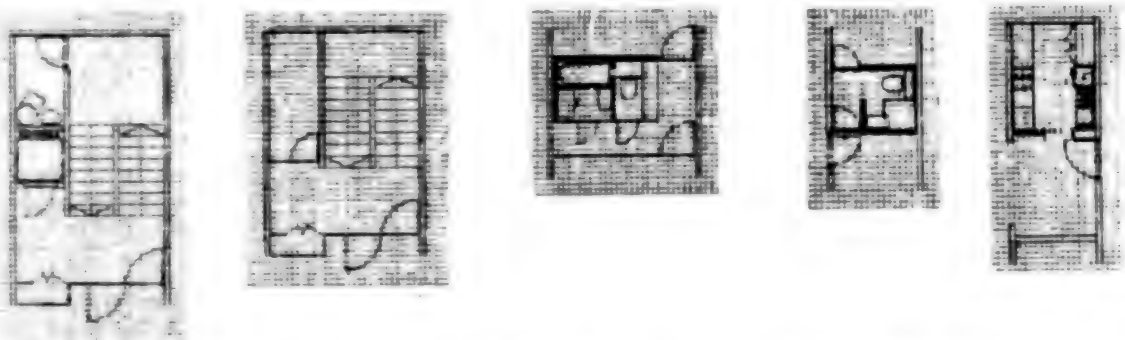


Figure 2. Examples of Constructional-Layout Compartments with the Use of Modules 15x15 cm.

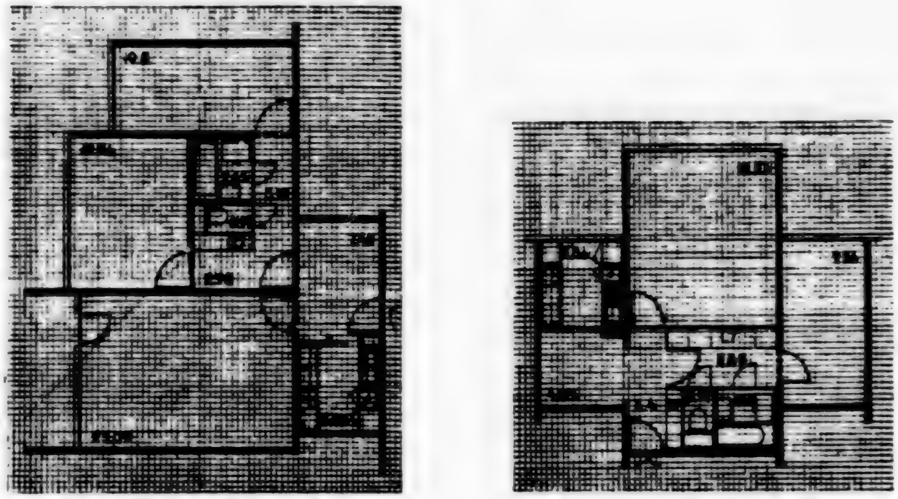
of construction and the nature thereof, the availability of local resources, the condition of the supply and equipment base, and the overall construction-design situation;

catalogs of standard, constructional and technological variants and of formwork structure; and

a structure for the monolithic-housing construction enterprise.

Choice of the required parameters is made from the catalogs. The composition of the design of the development is executed from various compositional elements or buildings. The set of formwork and required resources and expenditures are defined. The technical and economic effectiveness and choice of the master method for monolithic housing construction in a region depends upon the layout type and

Figure 3. Examples of Apartments in Sectional, Corridor and Gallery-Type Apartment Houses.



Apartment type G

Apartment type D

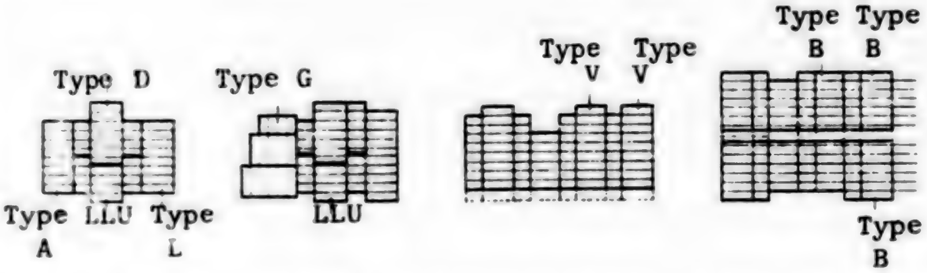


Figure 4. Examples of Compositional Architectural-Layout Elements of Sectional, Corridor and Gallery-Type Apartment Houses.

Key:

LLU--Stairway-elevator component.

the number of stories of the buildings or sets of them, and their relationship in the overall structure of the monolithic housing construction. The constructional type of the building also should be considered. The possibility of intersystems integration (for prefabricated-monolithic buildings) and the availability of the prefabricated elements (bathroom boxes, partitions, flights of stairs, and so on) exert an influence on it.

The turnaround of the formwork sets occasions an estimated period and a program of construction. These are dictated by the conditions for the preparation and transporting of the concrete mix, reinforcements, semifinished items and parts.

Construction time also depends upon the enterprises that have been specialized in the manufacture of formwork, and also upon the supplying of complete sets of rolled steel, plate or water-resistant plywood, fasteners, and so on, and the state of mastery of one method or another by the region's contracting organizations at the start of the estimated period.

The choice of repeating, standardizing elements (constructional and layout compartments and stairway-and-elevator components) is accomplished at the design stage for each specific housing complex, with a view to using the advantages of monolithic and prefabricated-monolithic construction to create diversity in the housing development.

The introduction of SMD provides maximum freedom and diversity for architectural-layout solutions that answer local urban-development requirements more completely.

The main facilities for standardization that are being developed to take local conditions into account do not preclude the possibility of their repeat use in similar climatic, physico-geographical, engineering-geological, urban-development or microclimatic conditions.

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11409
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HASTY DECISION STALLED DEBUT OF CEMENTMAKING BY DRY METHOD

Moscow TRUD in Russian 17 Feb 82 p 2

[Article by D. Katanov, chief specialist of the USSR State Committee on Science and Technology and candidate of engineering sciences: "The Price of a Mistake"; and a comment by the newspaper]

> [Text] The slow introduction of progressive technology in the cement industry is causing enormous losses to the national economy.

It is bad when electric-light bulbs burn in a shop during the meal break, for it is not thrifty. It is still worse when innovative equipment awaiting installation lies rusting in the yard for years. But the harm is multiplied a thousand-fold when errors and wastefulness are permitted throughout a whole branch of the economy. Erroneous decisions are reproduced at numerous enterprises, and the losses are counted not in the thousands but in the millions of rubles. Primarily the ministries are responsible for them, but often also planning organs.

We want to illustrate this in the example of such a most important branch of the national economy as the building-materials industry. This will be about cement. For a long time we have been in first place in the world in its production.

It would seem that there is no cause for concern. However, the matter is exactly the opposite. For serious errors in organizing cement production are concealed behind the outwardly favorable figures. In output of cement per capita of population, we still lag behind some developed countries, including socialist countries. Growth of its production during the past five-year plan was sharply cut. Most cement plants are using obsolete technology, which hampers technical progress in the industry.

We shall dwell on this in more detail. There are three methods for making cement: the wet, the dry and the combined methods. The first has been well known for a long time, and it is precisely this principle that most of our cement plants are using. Meanwhile, in recent decades many countries, including the USSR, have started work to create a dry method for producing cement. It has many indisputable advantages. But the main one is that it cuts fuel consumption almost in half in the production of this building material. On the average, about 100 kilograms of fuel are saved in the output of each ton of cement clinker.

However, in our country only 15 percent of all cement is being produced by the dry method. But the GDR, Japan, France, Czechoslovakia and a number of other countries have converted almost completely to this economical method. The overconsumption of mazut, gas and coal is almost 10 million tons because of the low technical level of this industry, that is, the obsolete wet method is being used. These are gigantic figures! Isn't this extravagance?

The dry method has still another advantage. A cement kiln is an enormous and complicated structure. In order to get 3,000 tons of clinker per day, a kiln that operates on the wet method should have have these internal dimensions: a diameter of 7 meters and a length of 230 meters. A modern "dry" kiln produces this same norm, although its dimensions are severalfold smaller,

So why is this progressive technology being introduced so slowly?

At first the work was undertaken energetically. At the end of the 1960's the All-Union Scientific-Research Institute for Cement Machinebuilding worked out, with the participation of some USSR Minstroymaterialov [Ministry of Construction Materials Industry] scientific-research institutes, a high-capacity industrial line. Today, a decade later, we are operating such lines, more or less successfully only at the Novospasskoye Cement Plant. The other two plants--at Karaganda and Navoy--are working with this equipment but have reached only 50-60 percent of the designed capacity. Three lines have not been installed yet. Let us note: they have been lying at construction sites now for a whole five-year plan! And they are now planned for introduction only in 1983-1985. And, in general, the share of cement produced by the dry method has been increased in a decade by only 1 percent--which is insignificantly small!

One of the reasons is that the development of this complicated technology had not been supported by the timely creation of the required experimental-test base. Without having worked the process out completely and waited for completion of the required tests and refinement of the experimental-test model, a decision was adopted: to begin series manufacture of another seven sets. And this was the first serious error. In a hasty procedure, over a period of 4 years the equipment was sent to four giant plants that were being built. Although it was already clear then that this "dry" equipment had not been fully developed.

The blame for this rests with Minstroydormash [Ministry of Construction, Road and Municipal Machine Building] and Minstroymaterialov workers, who started up mass production of technically unimproved lines, which slowed the pace of reequipping of the cement industry. However, the responsibility for slow introduction of the progressive technology should also be shared by workers of USSR Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises] and other construction ministries, which delayed excessively the erection of the new plants, and by planning organs, which did not allocate the required funds in time.

Time has passed, and many design development solutions that were worked out in the 1960's during creation of the first lines have become obsolete. Taking account of recent achievements of domestic and foreign science and technology, a qualitatively new industrial line for producing cement by the dry method has been worked out. It was manufactured in 1979 for the Krivoy Rog Cement Plant. However, even this more improved industrial complex still has not been put into operation. The newest equipment (including imported equipment for which the foreign firm's guarantees have expired) stand idle. Again, for the same reasons--the builders (USSR Mintyazhstroy) were let down, and USSR Gosplan and Minstroymaterialov did not provide timely financing.

Meanwhile, this complex is the basis for the construction of new plants for producing cement by the dry method, and also for the modernization of existing enterprises.

What must be done in order to convert to the progressive technology in the cement industry as quickly as possible? First of all, a precise long-range plan for the construction of new and the modernization of existing plants that will operate by the "dry" technology is needed. However, analysis indicates that the problem cannot be solved just by building new plants. A no less important area is the reequipping of existing plants that make cement by the wet method. We are talking about converting them to the so-called combined method, which will enable the progressive energy-saving technology to be mated with existing production facilities. On the national economic scale, this will enable 45-50 million tons of fuel to be saved during, let's say, a five-year period. All the expenditures will be recouped.

This, to all appearances, should be the strategic goal. But in order to reach it, an integrated program for rebuilding the cement industry and reequipping it is necessary. There is no such program today, and various uncoordinated measures cannot bring success. Who should concern themselves with this? Primarily Minstroymaterialov and Minstroydormash, with the participation of USSR Gosplan, USSR Gosstroy, GKNT [State Committee for Science and Technology] and other interested ministries and agencies. Experimental-test development of optimal methods for converting to the combined technology at existing production facilities should be an important step in this program. One cannot be reconciled to the fact that the people's money is going down the drain.

Two Questions for USSR Minstroymaterialov and Minstroydormash Supervisors [the newspaper's comment]

A ministry's staff bears responsibility for scientific and technical progress in a branch of the economy. The level of development of the cement industry, with which many branches of the national economy are associated, does not now meet the requirements of the times. The new technology has become bogged down firmly in bureaucratic coordinations. Ministry workers put the blame on the builders and planners, while the latter accuse the ministry workers, and the matter comes to a standstill. This is not a civic approach. That is why I would like to put two questions to the managers of Minstroymaterialov and Minstroydormash:

How could it happen that "raw" lines were started up whose designs had not been fully refined and which have inflicted no small economic harm?

When will a specific integrated program for reequipping the cement industry be developed?

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CONSTRUCTION

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SURVEY PINPOINTS QUALITY MONITORING SHORTCOMINGS

Moscow EKONOMIKA STROITEL'STVA in Russian No 2, Feb 82 (signed to press 18 Jan 82) pp 34-35

[Article by Candidate of Economic Sciences I. A. Akimova: "Causes of Poor Construction Quality"]

[Text] A study made of nine territorial organizations of the USSR Ministry of Construction by the USSR Gosstroy NIIES [Scientific Research Institute of Construction Economics], jointly with the orgtekhstroy's [state trusts for industrial construction] of these organizations, was expected to reveal the causes giving rise to defects, that is, deviations from the specifications in the normative-technical documentation (see Table 1).

Table 1.

cause	(1)	(2)	(3)
errors in estimate-planning documentation	1	0.01	10
defective materials, items and components	1,644	22.48	2
lack of work plans	10	0.14	9
lack of production monitoring	3,488	47.69	1
uneven work	318	4.35	5
low-skilled workers and line engineering-technical personnel	915	12.11	3
lack of material interest	15	0.21	8
unavailability of instruments and laboratory equipment	517	7.07	4
unavailability of work tools and instruments	236	3.23	6
failure of working conditions and organization to conform to normative-technical documentation specifications	169	2.31	7
total	7,313	100	

Key:
1. Number of violations of normative specifications, by cause
2. Proportion of normative specifications violations by cause, in percent
3. Rank of cause, as determined by relative significance of violations

First among the causes of defects is the absence of production quality control, second is defects in materials, items and components, which also results from the absence of precisely set-up input monitoring.

The high proportion of these causes permits the assertion that introducing production monitoring is the basis of solving the problem of ensuring the normative level of construction-installation work quality. This is also supported by the data of Table 2, which indicates the ranks of causes of poor quality for individual territorial construction administrations.

Table 2.

cause rank	cause	rank of cause for USSR Ministry of Construction territorial construction organization surveyed								
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	lack of production monitoring	1	1	2	1	2		1	2	1
2	defective materials, items and components	2	2	1	3	1	2	5	2	2
3	low-skilled workers and line engineering and technical personnel	4	5	3	2	3	--	2	1	3
4	unavailability of instruments and laboratory equipment	6	3	5	5	4	3	3	7	4
5	uneven work	5	4	7	4	5	--	4	4	5
6	unavailability of work tools and instruments	3	--	6	--	6	5	6	5	6
7	failure of working conditions and organization to conform to normative-technical documentation specifications	--	--	4	--	--	4	7	6	8
8	lack of material interest	7	--	9	--	--	--	--	--	7
9	lack of work plans	8	--	8	--	--	--	8	--	--
10	errors in estimate-planning documentation	9	--	--	--	--	--	--	--	--

Key:

1. Glavprivolzhskstroy
2. Glavverkhnevolzhskstroy
3. Glavzapstroy
4. Voronezh terr. const. adm.
5. Tambov terr. const. adm.
6. Novgorod territorial construction adm.
7. Vladimirskiy territorial const. adm.
8. Mordovian territorial const. adm.
9. Latvian SSR Ministry of Construction

Production monitoring, that is, monitoring the construction organization itself during the course of erecting projects, includes operational monitoring on the part of foremen and work superintendents in the course of performing individual operations, input monitoring done by them if materials, items and components are imported directly to the construction site, acceptance monitoring when foremen and work superintendents accept work done by brigades based on job authorizations, and inspection monitoring done by persons so empowered (chief engineer, his deputy, public inspectors). Construction laboratory workers usually participate in all the above types of monitoring.

Each of the indicated types of monitoring has its own task and therefore cannot be supplanted by another.

Operational monitoring is intended to reveal and prevent defects in the course of performing the work. The evaluation based on the results of this type of monitoring is of the alternative type: does the performance of an operation conform or not to the specifications of the normative-technical documentation. If it does not, the work must be done again, preventing the appearance of defects in subsequent operations.

Acceptance monitoring must prove the possibility of accepting work completed by a brigade (link) or the necessity of correcting defects revealed. If operational monitoring is done in accordance with the operational monitoring chart requirements, no complications will arise during acceptance monitoring.

Practice has shown that all types of monitoring are currently being done unsatisfactorily. This is to be explained in significant measure by the fact that a construction organization can say it is not answerable for the quality-level indicator, inasmuch as the level of quality is not established in the plan and does not influence formation of the incentives fund of the organizations.

Foreman and work superintendant time-and-motion studies made in Orekhovo-Zuyevskiy Trust No 12 of the Glavmosoblstroy (296 timed photographs and 142 visual time schedules) showed that line workers spend an average of 64 minutes on operational, input and acceptance monitoring, instead of the 173 minutes required according to the work technology. In many construction organizations, this figure is even lower. This is to be explained by the work load on line personnel and by their performing functions other than their jobs, as well as by the continuing lack of supervision to ensure high-quality construction-installation work.

It is precisely the task of inspection monitoring to reveal the state of input and operational monitoring organization, verify the correctness and timeliness of that monitoring, reveal in the course of its work defects typical of that type of work in that organization, and prepare planning and operational proposals on eliminating them on the basis of the information received.

So important a function as quality control cannot be entrusted just to public monitors (inspectors). The chief engineer and his assistant can do this work sporadically. The necessity of conducting planned, systematic inspection monitoring has led in practice to the creation of quality control services (which are sometimes called quality inspectorates or technical monitoring departments) in many construction-installation organizations.

The experience of house-building combine No 3 of the Glavmosstroy is widely known. Since 1977, it has had a quality control service consisting of 28 people and a construction laboratory. The duties of the quality engineers include operational and acceptance monitoring of work done by brigades. The quality control service chief has the right to halt work. Workers are paid bonuses for performing work paid for by the job assignment with consideration of evaluations of the quality of the work done as posted by quality control service inspectors. During the three years the service has been in existence, the savings from lower expenditures on correcting defects was 34.3 kopecks per cubic meter of total housing space put into operation in 1977, 50.3 kopecks in 1978 and 58.1 kopecks in 1979 (Mosarkhstroykontrolya data).

Putting production monitoring organization in proper order requires legal recognition of the quality control services, that is, making them part of the construction organization structure, regulating their size and delineating corresponding rights and duties.

Workers can be freed to create a quality control service by centralizing management functions.

Granting legal status to quality control services increases the responsibility of the implementers to observe construction norms and regulations when performing construction-installation work and leadership in the construction organization will have an accurate idea of the actual status of work quality, which will permit a significant rise in the level of construction quality.

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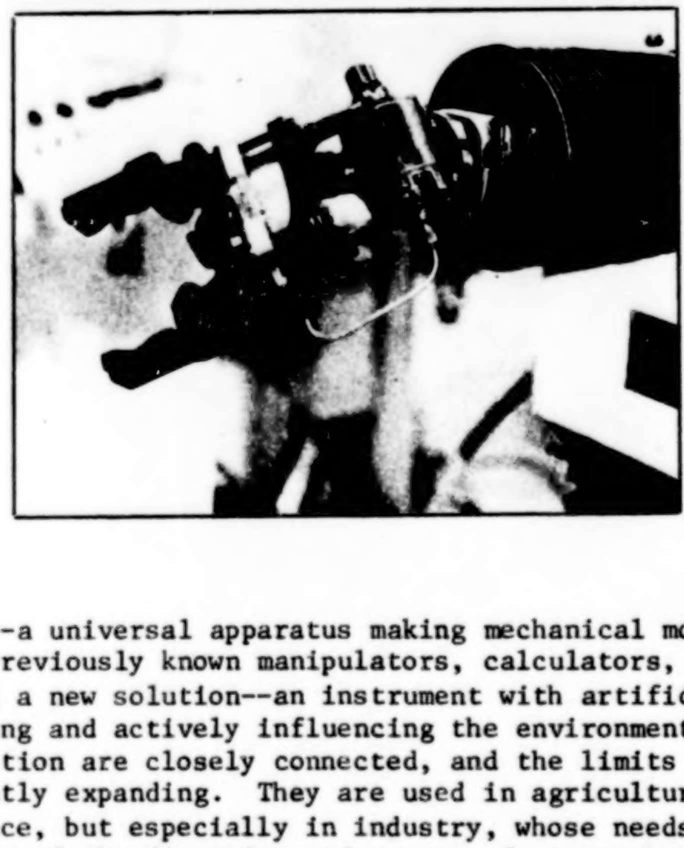
METALWORKING EQUIPMENT

UNIVERSAL-5 INDUSTRIAL ROBOT DESCRIBED

Tallinn TEHNIKA JA TOOTMINE in Estonian No 2, Feb 82 (signed to press 8 Feb 82) p 21

[Unsigned article: "TPI [Tallinn Polytechnical Institute] Receives Robot"]



[Text] A robot--a universal apparatus making mechanical movements--is an example of how previously known manipulators, calculators, and sensors together provide a new solution--an instrument with artificial intelligence, capable of sensing and actively influencing the environment. Robots and robotized production are closely connected, and the limits on robot application are constantly expanding. They are used in agriculture, transportation, health and science, but especially in industry, whose needs are actually the main determinants of the direction and extent of research in the field. Wide application of robots is one of the main paths to improved production efficiency. Robots are easily adaptable, and for this reason they are of great use in limited production runs or even in individual production. A robot frees man from the inevitably monotonous work that occurs with the ever-increasing specialization of production.

Building robots with artificial intelligence and exploring their development has become a basic problem with independent scientific importance. The appearance of intelligent robots permits new technological processes where man's participation in production is limited to maintaining the robots. Research into robot technology is going forward on a broad front, and the scientists and scholars of our republic are participating in it. The industrial robot "Universal 5" was recently placed into the electrical machine department of the Tallinn Polytechnical Institute for instructional and research purposes. The apparatus is designed primarily for servicing machine tools and for replacing operators in machine construction plants. The industrial robot consists of a manipulator (pictured), a control system, and motors to move the manipulator. A human being has two hands; the number of a robot's manipulators is not limited. The abilities of a robot are limited by the number of its freedom of movement stages, i.e., by the number of coordinates the manipulator can move and the number of various positions that it can assume to grasp items. The normal robot has 3 to 6 free movement stages; the one in TPI has 6 of them. Electrical motors are used for 4, pneumatic propulsion for 2. The complexity of a robot's operations depends on the level of the control system. The "Universal 5" has a programmable system and can perform 50 different operations in sequence. Positioning has an accuracy of ± 2 mm. The dimensions of the manipulator's jaws are adjustable to the dimensions of the part being processed.

Once the robot has been programmed, it operates inflexibly. In the future, robots will appear that are capable of adjusting the operations to surrounding conditions.

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